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Vol. XXXIX. No. 9

SEPTEMBER 5th, 1938

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**Apples and Pears in Western Australia**

QUANTITIES FOR LOCAL MARKET GREATER THAN ANTICIPATED — SUBSTANTIAL INCREASE IN GRANNIES — GROWERS ARE CO-OPERATING IN REGULATION OF MARKETS — PROBLEMS WITH PURCHASED FRUIT — PEARS POSITION SATISFACTORY — INTERESTING REPORT BY APPLE SALES BOARD.

INTERESTING INFORMATION is contained in the eighth annual report of the Western Australian Apples Sales Board. The report, which deals mainly with cool stored fruit, states that early in the present season it was the generally accepted opinion that the crop was light and that the total stored would not approach the figures of other years. As the season developed, reports to hand indicated that the position of cool-stored stocks might improve, contrary to many early surmises, and it was decided to seek information as to stocks at the end of May. These indicated an excess over last year's totals, and this was confirmed by figures at June 30, which showed a total higher by 12,000 cases than at June, 1937. After adjusting for the relative estimated totals of exports after July 1, it appeared that the net total for local consumption was approximately 10,000 cases over that for 1937.

It would seem that very many growers worked on the assumption of short supplies of cool stored Apples for local market, and have not availed themselves of export outlets to their fullest capacity. How far this position has been influenced by purchases from growers as a speculation is also a further point of conjecture, but that this feature has been responsible in no small measure is shown by the high proportion held in city stores. It is also considered that, in many instances, the higher percentage of very ordinary quality resulting from the lower crop has led to a higher proportionate retention for local sale, and that an unduly large portion of such lots have been stored instead of advantage being taken of favorable market values.

However, the fact remains that the local market will be asked to consume approximately 10,000 more cases than in 1937, and taking last year's values as a guide, there seems no reasonable grounds for the expectation of fancy values. This does not mean, however, that reasonable satisfactory returns cannot be secured for the total held, but to ensure this, an early start to unload is necessary, and the market must be regularly fed throughout the season.

The most striking feature of the stock position is the enormous increase in the total of Granny Smiths.

The storage of such a large quantity has probably been influenced by the high values obtained for this variety last season, but it must be remembered that the high prices ruling in the latter part of last season was due very largely to the fact that a large proportion was necessarily marketed early, owing to being packed in sulphite wraps. It is, however, a pleasing feature of the general position that the increase in the total is comprised of the most popular variety. This will undoubtedly facilitate the handling of the increased quantity, although the repercussion may be felt in respect of less favored varieties. Yates show a slight reduction on the 1937 total when the market was amply supplied.

## Comparisons with Last Season.

The report, dealing with the 1936-37 season, states:—"Early indications pointed to a record crop, but the total harvested, due to storm losses (estimated in excess of 450,000 cases) was only 1,045,369 bushels, as compared with 1,235,849 in 1935-36. The total number of cases stored was only slightly less than the 1936 total, which was the second highest total ever experienced.

"Shed-stored quantities, however, were unusually light, and were approximately only half the quantity stored in other seasons. Fear of Fruit Fly restricted the holding of quantities, particularly in the hills districts. This position naturally facilitated the clearances of cool-stored fruit.

"It is pleasing to report a greater degree of co-operation from growers generally in the carrying out of the recommendations of the marketing committee to feed the market in accordance with the cool store stock position.

"While some difficulty was experienced early in the season in arranging the clearances of sufficient quantities, once this was adjusted, the programme set down for the various stores was maintained.

"The committee was again hampered, however, by the fact that a large proportion of the total held in store was in the hands of merchants and speculators, whose clearances were related to their individual ideas, releases being made in competition with grower-owned fruit.

"We have previously commented upon this phase of the marketing problem, which is a serious disability to the committee in the effectiveness of its work, and while some growers continue to weaken their own position and that of their fellow growers by disposing of their crops into the hands of speculators, the task of the committee will not be either as easy or as effective as it should be.

"The quality generally (with the exception of a large proportion of stocks from Bridgetown district which were affected by hail) was good. Yates were generally above the average quality in size and color. Owing to the difficulty of securing sufficient quantities of oiled wraps early in the season, a large proportion of the Granny Smiths were stored in sulphite wraps. This affected their storage life, and necessitated earlier clearance of many lines.

## Pear Position Satisfactory.

"The 1938 season will be remembered as one of the most satisfactory that has ever been experienced since the regulation of the marketing of Bartlett Pears has been under the care of the Marketing Committee of the Board.

"While it is true that this happy experience was greatly influenced by the very favorable climatic conditions which prevailed throughout the selling period of the cool-stored portion of the crop, there is no disputing the fact that the regulation of supplies has been the most important factor in maintaining values at such very satisfactory levels.

"It is pleasing to report that the recommendations of the marketing committee were carried through by all agents connected with the Board, both country and metropolitan. Unfortunately, a very high percentage of the fruit in the metropolitan stores had either passed from the control of growers by sale or was in the hands of parties who do not co-operate in the work of this organisation, and was not, therefore, subject to any orderly scheme of marketing. This factor caused the committee considerable trouble in making their decisions, and if this practice is persisted in there is little doubt that the work of regulation of supplies will become an impossible one, and the position will revert to one of chaos."

## A BOOK FOR FRUITGROWERS.

"Insects of Citrus and Other Sub-tropical Fruits," by H. J. Quayle, Professor of Entomology in the University of California, and entomologist in the California Agricultural Experiment Station, 583 pages, 377 illustrations, 8vo. cloth, 1938.

This book discusses, primarily, the biology and control of the insects that attack citrus fruits in all of the important citrus-producing countries of the world. The insects of the avocado are likewise treated. In addition, the insects that attack other sub-tropical fruits in the United States are included. The insects of these additional crops include those of the Vinifera Grape, Persian Walnut, Almond, Pecan, Fig, Olive, Oriental Persimmon, Date, and Pomegranate.

It is intended for growers and for those in an advisory capacity to growers because it contains practical and specific directions for control; it is intended for Federal, State, and county officials because the biology and economics of the species, including that of their parasites and predators, are also given; and it is intended for the student and teacher because, in addition to the above, the keys, descriptions, and illustrations enable identification of the species to be made, and references are given as to the source of the information and for further reading.

The book should be of interest to entomologists, horticulturists, and others beyond the geographical range of subtropical fruits, because it treats of a field not heretofore covered in book form. The general methods of insect control such as spraying and dusting, and particularly fumigation and the biological method, are well exemplified in the control of citrus insects. The culture of subtropical fruits has been rapidly expanding in many countries of the world. The moderate climatic conditions under which such fruits are grown, and the fact that many of the subtropical fruits are evergreen, make conditions as to climate and food (the essentials of environment) most favorable for serious insect attack. Consequently, a knowledge of the insects concerned and how to combat them constitute one of the important factors in the culture of subtropical fruits.

"It is simply a question of veracity between us," said the oldest inhabitant. "He said I was a liar and I said he was one."

"Humph!" rejoined the village postmaster. "That's the first time I ever heard either of you telling the truth."

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## Contents

Illustrations.	
Black Spot Control (4 illus.)	5
Tasmanian Scenes (2 illus.)	9
Tomato Plants Grown Without Soil	10
Delicious Apples at Bairnsdale, Vic.	11
Subjects.	
Apples and Pears in W.A.	2
Black Spot Control	5, 6
Citrus News and Notes	17-19
Crops Without Soil	10
Dried Fruits Notes	20
Fruit Fly Control	8
Fruit Juices, Production of	27
Gummosis Disease in Apricots	22
Internal Cork of Apples	8
International Horticultural Congress	14
Letters to the Editor	4
Mid-Murray Notes	24, 25
Month in Review	3
Motor Notes	28
News in Brief	4
New South Wales	15, 16
Nitrogen Age	26
Obituary	4
Oil Spray to Prevent Frost Damage	7
Orchardists & Fruit Cool Stores Association	29
Pear Slug Control	8
Personal	3, 4
Powdery Mildew of the Apple	8
South Australia	21-25
Stationary Orchard Spraying	7
Tasmanian News	9, 10
Victorian News and Notes	11-13
West Australian News	2

## Index to Advertisers

Page	
Actibon	2
Adelaide Fruit Merchants	38
Bingham, D. W. & Co. Pty. Ltd.	19
Blyth Chemicals Ltd.	2
Brisbane Fruit Merchants	36
British Mushroom Industry	14
Brookes Lemos Ltd.	6
Brunning, John & Sons	32
Chilean Nitrate	31
Ciensel Products Pty. Ltd.	7, 16
"Cleo"	20
Davis Gelatine	38
Electrolytic Refining & Smelting Co. of Aust. Ltd.	6
F. & M.G. Society	21
Gerrard Wire Tying Machines Co. Pty. Ltd.	15, 23
Goodman, C. J.	4
Hillman & Keogh	32
Howard, R. G., & Co.	23
Hull, Port of	37
International Harvester Co. of Aust. Pty. Ltd.	16
Jaques Pty. Ltd.	5
Karrybetta Fruit Trays and Cases	25
Koerner, F. G., & Co. Ltd.	23
Lake, H.	19
Leggo & Farmers, Victor Ltd.	6
Lightning Fruit Grader Co.	
Cover I.	

## The Month in Review

## OTTAWA AGREEMENT

THE VARIOUS SECTIONS of the Australian fruit industry will be awaiting with very great interest the official pronouncement concerning the revision of the Ottawa agreements and the effect of the trade pact between Great Britain and the U.S.A. In the light of all that has transpired it is difficult to conceive of British concessions on American fruit entering Great Britain as set out in the cables published in this issue without corresponding advantages to Empire producers.

Mr. H. D. Howie, Chairman of the Board of Management of the Australian Dried Fruits Association, states

his organisation is awaiting further information before making comments, as his Association had received no intimation of the change in the duties on American dried fruits.

The Australian delegation was armed with detailed information concerning the fruit and other primary industries, and there has been a general feeling of confidence that the interests of producers would be safeguarded in any revised trade agreements.

It is understood that details of the trade pacts will be released some time this month.

## Duty on Case Timber

PROMPT ACTION has been taken by representatives of the fresh, canned and dried fruit sections of the Australian fruit industry in protesting against the by-law recently gazetted by the Customs Department, which would make dutiable the various cases used in orchards and vineyards, i.e., such cases as are not actually sold with the goods.

The effect of this by-law would be to add substantially to the present cost of fruit production, as the cases which have thus become dutiable include picking, lug and sweat boxes, also cases used for holding fruit in cool store. Other boxes which would be included are those for carrying eggs, fish, rabbits, those for internal use in factories and warehouses, and all classes of boxes used to pack merchandise, but which are returnable and not sold with the goods.

It is believed that it was not the intention of the Department to place such restrictions on containers for commercial purposes, but rather to prevent timber imported for the manufacture of commercial boxes from being used for other purposes such as the manufacture of fuel boxes, which are articles of furniture and of large removal cases for transporting household furniture, etc.

The views of the industries affected have been placed before the authorities in the belief that relief will be granted and that the decision not to include the cases referred to will be made retrospective as from the date of the issue of the by-law.

At the same time there would appear to be the opportunity for better co-operation by the Department concerned and the various industries. No warning of any kind was given that action to increase producers' costs was even contemplated and it is disturbing to find that the Regulation has been duly gazetted with the full weight of the law behind it. In particular the dried fruit, canned fruit, and Apple and Pear industries are sufficiently organised for the Customs Department to have made needed contacts and to have apprised those concerned of the projected change.

As the matter stands the burden of increased costs to the extent of many thousands of pounds has been imposed upon the industries. The request is that the by-law be amended to include the specific items in which it is understood certain evasions are taking place, but that the industries otherwise not concerned be freed from the present drag net.

## Personal

Mr. H. J. Bishop, president of the South Australian Fruit Marketing Association has resigned because of ill-health. Mr. Bishop has been President of the S.A.F.M.A. for the past ten years.

At the Apple and Pear Council meeting to be held at Sydney, Mr. Randall will represent the growers, and Mr. P. R. B. Searcy the shippers.

Mr. L. J. Lynch, an officer of the Food Preservation and Transport Section of the C.S.I.R., is being sent to New Zealand to investigate the nature and extent of wastage in Oranges, particularly that due to fungal attack.

Mr. J. G. B. McDonald, M.L.A., of Shepparton, Victoria, has been appointed Government Whip. The voting was close.

Mr. W. Young, Chairman of the Northern Victoria Fruitgrowers' Association, who has just returned from attending the trade discussions in London on the Ottawa Agreements, is convinced as to the value to the industry by the attendance of the Australian delegates representing canned fruits. He also observed the marketing of Apples and Pears. He will have much interesting information as soon as the results of the trade agreements are officially announced.

Mr. H. D. Howie and Mr. W. N. Sumner, representing the Australian Dried Fruits Association, are active in the endeavour to protect the fruit industry from the effects of a new Customs by-law which would increase costs of sweat boxes and lug boxes, etc. An amendment to the by-law is sought.

Mrs. F. Cave, wife of Mr. F. Cave, fruit exporter, Melbourne, is now in England enquiring into aspects of fruit marketing in England including imports from Australia.

Mr. F. G. Beet, of Vermont, Victoria, is deserving of special mention for his valued activities in assisting

the Apple Publicity Campaign. Mr. Beet commenced by collecting Apples for distribution to school children in 1937. He placed his motor truck at the disposal of the Publicity Committee and cheerfully gave his time to distribute the Apples. Again this year he has been as active as ever in this appreciated service. He is a lover of children and a true friend of the industry. May his shadow never grow less.

Mr. J. W. Aspinall, Secretary of the Southern Fruitgrowers' Association, has been associated with Mr. Beet throughout the whole of the Apple distribution programme. His energy despite his 79 years is amazing. These men have rendered services to the industry the value of which it is impossible to compute.

The Fruitgrowers' Federation of New South Wales is co-operating in a campaign to advertise all fruits in a campaign to advertise all fruits in a

Unsatisfactory conditions for handling fruit at Darling Harbour were trenchantly dealt with by witnesses before the Fruit Enquiry Commission in Sydney.

Experiments in tung oil are being conducted in N.S.W., stated the Minister for Agriculture recently. Arrangements had been made to extend the plantation at Grafton Experiment Farm by the planting of 130 trees.

The annual report of the Australian Nutrition Committee states that members of the general public are not eating sufficient fruit and vegetables for normal health.

The educational campaign being conducted by the Apple and Pear Council in co-operation with the Federal Government is increasing the sale of Apples. It is necessary for this educational work to be continued.

The orchard industry at Harcourt, which suffered so severely last season because of water shortage, is now facing total extinction. The trees will not stand another year of drought. Remedies suggested are the pumping of water from the Waranga system for use by the city of Bendigo, thus relieving the Coliban system of this

heavy demand, or the Ashbourne cut from the Campaspe River be enlarged and the water diverted to the Malmsbury Reservoir.

In Tasmania, Apple trees of the varieties Scarlet, French Crab, Dunns, Duke of Clarence and Tasman's Pride are being worked over mainly to Lalla, Red Jonathan, Red Cox, with a fair proportion of Red Crofton, Red Rome, Cox, Granny Smith, Golden Delicious and Alfriston.

#### OBITUARY.

Mr. H. M. Leggo.

Mr. H. M. Leggo, the well-known preserves manufacturer, died in Melbourne on September 1. He was born at Eaglehawk in 1859.

He showed considerable enterprise and was widely esteemed. He is survived by one son and four daughters.

#### Letters to the Editor

#### APPLE AND PEAR EXPORT CONTROL.

The Editor, "Fruit World." Sir,

Fruitgrowers are receiving with concern the proposed Apple and Pear Board, such Board to be by nomination, not election, and to be similar to the Dried Fruits Board and the Butter Equalisation Scheme. It will not be necessary to obtain the sanction of the growers, as a referendum of the latter is not to be taken in order that they may or may not have the opportunity to express their will as to whether they desire to submit to further control of their liberties, which are, alas, already sadly curtailed.

As an indication of what we may expect, may I quote from a letter received from the Assistant Minister for Commerce: "The object of the Government's Bill is to introduce some control within the industry to improve the marketing conditions overseas, and I trust the Government will see fit to go on with the measure." This statement was made by the Assistant Minister for Commerce in spite of the fact that the Tasmanian growers passed a resolution objecting to the Bill unless a referendum of the growers was taken.

We have had years of regulations placed on restrictions, with what result? All fruitgrowers know the answer. The position is becoming steadily worse. Any effort towards the removal of these senseless restrictions would have the wholehearted support of all fruitgrowers who realise the serious trend of events. The removal of the sugar embargo, a most glaring example of restriction, would give to the fruit industry a new lease of life. How long are we to suffer this iniquitous octopus?

I would be glad to support any movement of protest against this proposed Apple and Pear Board.—Yours, etc.,

R. Serpell.

Doncaster, Vic., 19/8/38.

## News in Brief

### As Spraying is a Necessity —then use the World's Best—

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# Control of Black Spot of Apples and Pears

TIMING OF SPRAYS ESSENTIAL, ALSO THOROUGH APPLICATION — VARIETAL SPRAYS SHOULD BE OBSERVED — HINTS FOR SPRING AND SUMMER.

**H**ELPFUL ADVICE on the subject of control of Black Spot of Apples and Pears, has been issued by the Department of Agriculture of Victoria. This advice is based on practical experiments conducted by Departmental officers on growers' properties over a series of years.

The various stages of growth at which sprays are applied are as follows:—

1. **Green Tip:** This is recognised when the bud scales have separated from the majority of the blossom buds and the tips of the green folded leaves are just visible.

2. **Finger:** The young green leaves have separated from the blossom buds which are beginning to separate in the cluster.

3. 5-10 per cent. **Blossom**, i.e., when 5-10 per cent. of the flowers have opened.

4. **Petal-fall**, i.e., when the majority of the petals have fallen.

## Schedule No. 1.

For varieties liable to russet, such as Jonathan, London Pippin, Yates, Rokewood, Gravenstein, etc., the following schedule is recommended:—

At the "Green Tip" stage apply Bordeaux Mixture 6:4:40.

At the "5-10 per cent. Blossom" stage apply lime-sulphur (20 per cent. polysulphide content), 2:1:80.

At the "Petal-fall" stage apply

lime-sulphur (20 per cent. polysulphide content), 1:1:80.

At a stage 14 days after the petal-fall application, apply lime-sulphur (20 per cent. polysulphide content), 1:80. See Note 3 re combination of lime-sulphur with arsenate of lead.

For the Jonathan variety, Bordeaux mixture should be applied at a slightly earlier stage than the green tip described above.

## Schedule No. 2 (The Bordeaux Schedule).

This programme is suitable only for varieties which do not russet readily and should not be used for Jonathans, London Pippins, Yates, Rokewood and Gravensteins.

At the "Green Tip" stage apply Bordeaux Mixture 6:4:40.

At the "Finger" (no later) stage apply Bordeaux mixture 3:3:50.

## Control of Summer Spot.

If the above schedules have been carefully adhered to, little trouble should be experienced with late Summer Black Spot. If late Spot does appear, 6 ozs. each of bluestone and freshly slaked lime should be included in each 80 gallons of lead arsenate or white oil spray. Growers who prefer to use lime-sulphur should use same at a strength of 1:80. (See Note 2.)

## Notes.

1. If a proprietary brand of slaked lime (hydrated lime), e.g., "Limil," "Snowflake," etc., is used for making Bordeaux mixture, the 6:4:40 formula becomes 6:6:40, the 3:3:50 becomes 3:4:50 and the 1:1:50 becomes 1:1:50.

2. Spray injury may result if Summer oil sprays are applied within three weeks of an application of a lime-sulphur spray.

3. When it is necessary to combine lime-sulphur and lead-arsenate, add the latter to the diluted lime-sulphur and spreader immediately before spraying. For this combination spray, lime casein spreader 1 lb. in 80 gallons is recommended to reduce the risk of spray injury.

4. Efficient spraying, at all stages, is essential for the

control of Black Spot. Care should be taken not to "miss" the tips of leaders.

## Black Spot of Pears.

The various stages of growth at which sprays are applied are as follows:—

1. **Delayed Green Tip:** When the maximum number of blossom buds have brown scales (brachts) separating and tips of green folded leaves are just visible.

2. **Finger:** When green leaves are separated from blossom buds which are beginning to separate in the cluster, but before white petals appear. (Note—odd blossoms only may be showing white petals.) If a 6:4:40 Bordeaux mixture spray is applied later than this stage russet may occur.

2. **Late Calyx:** About three weeks after the fruit has formed.

William's, Beurre Bosc:

At "Delayed Green Tip" stage apply Bordeaux mixture 6:4:40.



Pear blossom showing "finger" stage.  
Illustrations by courtesy "Vic. Journal of Agriculture."



Apple blossom buds showing "green tip" stage. The bud scales have separated from the majority of the fruit buds and the tips of the green folded leaves are just visible.



Showing "early pink" stage of Apple blossom.



The "delayed green tip" stage of Pears.

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**Arsenate of Lead—Quality Stands Alone.**

We can supply all your Spray Requirements—**ARSENALE OF LEAD** (Paste or Powder), **SPRAY SPREADER**, **SPECIAL COPPER MIXTURE**, **LIME SULPHUR**, **WHITE OIL**, **NICOTINE SULPHATE**, **RED OIL**, **etc.**

Extract from "BETTER FRUIT," March, 1937, by Dr. R. L. Webster, Entomologist, State College of Washington, Pullman: **CODLIN MOTH COVER SPRAYS** "Ever since the imposition of an arsenic tolerance in 1926, and even before that time, investigators have been testing other materials which may be used in place of lead arsenate. Following all these intensive and extensive investigations lead arsenate appears to have certain inherent qualities which place this material foremost as an insecticide for codlin moth control."

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In Preparing Your Bordeaux Sprays Use . . .

# ESA BLUESTONE

— Manufactured by —

THE ELECTROLYTIC REFINING & SMELTING COMPANY OF AUSTRALIA LTD.  
PORT KEMBLA, NEW SOUTH WALES.

The Right Material for Plant Disease Prevention and Control  
**GUARANTEED 99% PURITY**

GRADES—Mixed Crystals, Fines, Granulated (Snow), Packed in Suitable Containers for Growers' Requirements.

Agents for All States: **ELDER SMITH & COMPANY LIMITED, All Capital Cities.**

BOOKLET—"Better Yields by Spraying with E S A Bluestone" obtainable on application to Elder Smith & Co. Ltd.

At "Finger" stage apply Bordeaux mixture 6:4:40.

At "Late Calyx" stage apply Bordeaux mixture 3:3:50, combined with the first arsenate of lead spray.

**Josephine and Winter Cole:**

Only one Bordeaux mixture spray (6:4:40) should be applied, and this will be at an early Green Tip stage. This stage is slightly earlier than that described as "Delayed Green Tip" above. Any further Bordeaux mixture sprays will russet this variety.

**Winter Nelis and Madame Cole:**

At "Delayed Green Tip" stage apply Bordeaux mixture 6:4:40.

At "Finger" stage apply Bordeaux mixture 6:4:40, but this application must be completed before any petals show pink.

At "Late Calyx" stage apply Bordeaux mixture 3:3:50. This spray must not be applied within three weeks after petal fall. This spray may be combined with the first arsenate of lead spray.

**Packham's, and Other Clean-Skinned Varieties:**

At "Delayed Green Tip" stage apply Bordeaux mixture 6:4:40.

At "Finger" stage apply Bordeaux mixture 6:4:40.

At "Late Calyx" stage apply Bordeaux mixture 1:1:50, combined with the first arsenate of lead spray.

**Control of Summer Spot.**

If the early Bordeaux mixture sprays have been efficiently applied, little trouble should be experienced with Summer Spot. If Summer Black Spot does appear, a Bordeaux mixture 1:1:50 can be applied, either alone or combined with an arsenate of lead spray, to Williams, Bosc and Packham's. For Josephine, if necessary, 6 ozs. bluestone and 6 ozs. freshly slaked lime can be added to 80 gallons of arsenate of lead spray, for the control of Summer Spot.

**Notes.**

(1) If a proprietary brand of slaked lime (hydrated lime), e.g., "Limil," "Snowflake," etc., is used for making Bordeaux mixture, the 6:4:40 formula becomes 6:6:40, and the 3:3:50 becomes 3:4:50. The 1:1:50 becomes 1:1:50.

(2) Thorough spraying at all stages is essential for the control of Black Spot. Care should be taken not to "miss" the tips of leaders.

(3) For varieties not mentioned in this circular consult the district Orchard Supervisor.

**Spray Forecasts.**

In districts where demonstration plots are established, the Orchard Supervisor will advise growers when to apply sprays per medium of notices posted in prominent places or published in local papers, or in the form of circulars. In addition, spray advice based on reports from all Orchard Supervisors will be broadcast from the following stations:

3AR—"Countryman's" Session, Monday and Friday evenings, commencing 6.15 p.m.

3UZ—"Man on the Land" Session, Tuesday mornings, 6.30-7 a.m.

Correspondence addressed to the Superintendent of Horticulture, at the above address, is invited.

## FRUIT BUYERS

LEMONS, ORANGES, GRAPEFRUIT,  
PEARS, PEACHES, APRICOTS,  
BERRIES, CHERRIES.

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# "VALLO SPRAYS"

**BEST by TEST**



### Arsenate of Lead Powder

The Finest Procurable.

Package, 56 lb., 28 lb., and 4 lb.



### Arsenate of Lead Paste

Arsenical Content of 99.60 per cent. Purity.

Package, 1 cwt., 28 lb.



### Lime Sulphur Wash

Minimum Polysulphide Sulphur, 20 per cent. Package, 44 Gal., 4 Gal.



### Copper Sulphate Neige

98/99 per cent.

Package, 1 cwt. and 56 lb.



### Nicotine Sulphate 40%

Guaranteed 40 per cent.

Package, 1 Gal.,  $\frac{1}{2}$  Gal.



### Prepared White Oil

89 per cent. Mineral Oil.

Package, 44 Gal., 4 Gal.



### Colloidal Sulphur

50 per cent. Sulphur, Weight for Weight. Package, Cases, 8 x 5 lb. Jars.

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A CORDIAL INVITATION IS EXTENDED TO GROWERS TO CALL AT OUR STAND AT THE MELBOURNE ROYAL SHOW, NO. 35 LENNON AVENUE.

# Stationary Orchard Spraying

## Extension in Shepparton District, Victoria

With the recent completion of a system at the Shepparton East orchard of Mr. E. J. Rule, and the current work on the installation of another at Messrs. Turnbull Brothers' Ardmona property, evidence is given of the appreciation of districts orchardists of the advantages to be derived from the use of stationary plants for orchard spraying.

The pioneer of the system in the Goulburn Valley, states the "Shepparton Advertiser," is Mr. W. Foster, who installed plants in Murchison and Shepparton East some time ago. Their installation was watched with interest, but no further extensions were noted until recently, when the electricity supply expansion provided orchardists with the power they needed at a low cost.

One orchardist who has had considerable experience, states that four men can spray 3,500 various aged trees in two days.

The use and development of the stationary system is bound to create even more interest in the future than has been the case in the past. They will see in the possible solution of the problem of more satisfactory, efficient and economic means of controlling orchard pests and diseases.

The present method, involving the use of the horse drawn engine driven outfits, have many disadvantages, among which are the purely horticultural objections of the damage to fruit and trees, the inability to spray while irrigating or furrowing out, the packing of the soil and the damage to green manure crops.

Serious as these disadvantages may be, they are equalled in importance by the incidental mechanical troubles always associated with portable plants. Pumps, engine and vat are subject to extreme wear and tear on rough ground, and as every orchardist knows, it is seldom that a day's spraying is got through without some necessity for repairs and adjustments with the accompanying waste of time when it can be least afforded.

The effect of the spray solution in the mist of which the engine is continually operating is highly detrimental to its working efficiency, and depreciation necessarily occurs at a high rate. Further, and perhaps more serious, the time lost in refilling and travelling between the orchard and the supply point, accounts for a large proportion of the total cost of spraying, and reduces by as much as 50 per cent. the time usefully occupied.

### New System

The new system calls for the stationary plant located in a convenient position to the farm buildings and water supply. The successful operation of the orchard piping system depends largely on an ample supply of water, for the pipes must be flushed out daily with water and left filled with water between spraying times.

The plant comprises a pump and motor to drive the water through the pipes to the orchard, mixing vats which vary in size from 200 to 400 gallons capacity with agitators.

The pipe system consists of three-quarter inch pipes laid in the ground, or suspended overhead, with half-inch lateral pipes to stand pipes and spray hydrants.

### United States Shows How

It is really surprising that the system has not been used more extensively in the past in the Goulburn Valley, for as far back as 1925 hundreds of these plants were installed in the U.S.A. fruitgrowing areas with great benefit.

In the Wentachee Apple growing district in the United States 325 stationary plants were sold during the year 1925, as against only 18 portable. The majority of these were electrically driven. It is now estimated that considerably more than half the growers use fixed plants and that almost every one within reach of the electricity supply is electrically driven.

A suitable type of spray gun having an eighth of an inch orifice will deliver about five and a half gallons per minute under 300 lbs. pressure, and will give a spray mist up to 20 feet. It is claimed that under average conditions, 1,500 gallons can be put through by one man in eight hours.

### Costs

Actual experience counts for a great deal when computing the cost, and thus the following figures for the installation of Mr. Gorman's plant on Mr. Foster's Shepparton East property are interesting.

The two 500 gallon vats for spraying mixture and necessary fittings totalled £30; two electric motors, one 1 h.p. and the other 5 h.p. including switches and circuit breaker cost £81; the pump cost £65; 1,000 gallon water tank and stand, £10; building of shed, including concrete floor, £40; cost of plumbing and piping with three quarter inch pipes, £7 per acre; agitators

# Oil Spray to Prevent Frost Damage

## Cheap Form of Protection Claimed

LATE FROSTS by which the work of a whole year may be destroyed within a few hours are a scourge of viticulture and horticulture. For a great number of years efforts have been made by practical horticulturists, as well as by men of science, to find a means of preventing the damage caused by frosts.

It is interesting to note that a German investigator, Professor Schauder-Geisenheim, seems to have found in the present year a new and relatively simple method for the prevention of such damages, a method which he has tried out with vines.

Starting from the assumption that the danger arising from late frosts would be considerably lessened if the shooting of the buds could be retarded he painted the vines with different oils in various states of concentration. He found out that the shooting of the vine buds could actually be retarded by three to four weeks by a coat of oil paint. The frosts occurring within this period had different effects on the vines according to the higher or lesser concentration of the oil emulsion; in proportion as the concentration was stronger the number of frost-damaged vine buds decreased and beyond a certain limit of concentration no damages occurred. The oils used for this test were crude linseed oil, boiled linseed oil and paraffin oil.

For German conditions the paraffin oil has so far most prospects to be used on a large scale, for the reason that emulsions of 7 per cent. of this oil give already satisfactory results and that this oil may be provided in any amounts desired. If linseed oil is taken a considerably higher concentration is necessary to obtain the

same results. It is a surprising fact—according to Schauderl—that the oils which at first prevent the shooting of the buds have a growth promoting effect on the latter as soon as they have come out. The costs of this indirect frost protection are, in the opinion of the author, considerably less than the expenditure incurred when the direct methods of frost control are applied. While for instance the heating of vine-planted hills by means of briquette stoves costs 180 Reichsmark per hectare in three nights, the painting of 10,000 vines only costs 32-35 Reichsmark (material and wages). The experiences made with vines are in conformity with the experiences which have been made a long time ago in pomiculture with carbolineum sprayings made in Winter. Even oil sprayings have already been tested on fruit trees, but only in California, and a retardative effect was also noted in these experiments. This method actually seems to offer a means of lessening to a considerable extent the damages caused by the much dreaded frosts. The International Horticultural Congress doubtlessly will also make a contribution to the solution of this important problem.

### SULPHATE OF AMMONIA AND ITS USES.

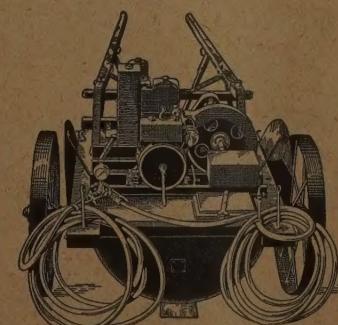
An interesting little book has recently been written by Mr. R. A. Boyle, M.Sc., for Nitrogen Fertilisers Pty. Ltd., 360 Collins-street, Melbourne. This book points out how nitrogen, as sulphate of ammonia, can be used profitably on all classes of crops cultivated in Australia, including tropical fruits, deciduous fruit trees and vines, vegetables, etc.

Colored illustrations are included throughout, and the book is so divided that anyone scanning it can easily find the section that applies specifically to the class of cultivation that interests him.

Interested readers may obtain a copy of this book post free by applying to Nitrogen Fertilisers Pty. Ltd. at the above address, and should mention the "Fruit World" when doing so.

**New Spraying Plant:** Mr. Roy Roberts, of Shepparton East, is installing a new type of spraying outfit produced by Messrs. Duncan Bros., Shepparton. The outfit is designed for operation with a McCormick-Deering Caterpillar Tractor.

## ... See the ... BAVE-U Power Sprayer



**RUSSELL & CO.**

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**Royal Agricultural Show**  
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● The Type Illustrated is  
the **UNDERSLUNG MODEL** ...  
which has been enthusiastically  
received in fruit areas throughout  
Australia.

## PROTECT

Your LEMON and ORANGE  
Trees from Scale and Aphis—

SPRAY with

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and see an immediate improvement  
in health and yield.

Obtainable from all Seedsmen  
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# THE PEAR SLUG . . .

## MEASURES OF CONTROL

(By J. W. Evans, Entomologist, Tasmanian Dept. of Agriculture.)

Although the "Pear Slug" (*Caliroa limacina*, Retz.) is usually known by its common name, other trees are liable to more severe infestation than are Pear trees. The worst sufferers are Cherry, Plum and hawthorn, and larvae may occasionally be found feeding on the leaves of Walnut and Almond trees, but the injury they cause them is seldom serious.

This is one of the simplest insect pests to control, but, because it only injures the foliage of fruit trees and not the fruit, and as its activities would appear to have little detrimental effect on infested trees, control measures are seldom attempted.

It is best controlled on fruit trees with lead arsenate, but if it is desired to destroy the insects on Plum or Cherry trees, when the fruit is ripe or almost ready for picking, lead

arsenate should not be used, but instead any contact insecticide, such as nicotine sulphate or derris, applied either as a spray or as a dust.

Hawthorn hedges surrounding gardens should be given applications of a derris dust, which acts as both a stomach and a contact poison. The first application should be made during the first fortnight in December and the second during the first fortnight in February. Of the two recommended applications, the second, which is intended for larvae of the second generation, is the most important.

Infestation of the canary fly (*Tephritis froggatti*) on hawthorn hedges may also be reduced with derris dusts, one application being made early in November and a second one, if warranted, at the end of January.

# Powdery Mildew of the Apple

## TREATMENT OF AFFECTED TREES

APPLE TREES attacked by powdery mildew usually present a very sickly appearance, and may become almost entirely defoliated. The disease is caused by the parasitic fungus *Podosphaera leucotricha*, and it occurs on the leaves, shoots, fruit spurs, blossom buds and fruits.

The disease is carried over from year to year by means of the fungus which covers the buds, tips of laterals, and the spurs, and by threads of the fungus enclosed in the scales of infected buds. The fungus remains dormant through the Winter, and in Spring spores are produced which infect the leaves as they emerge from the buds, thus starting the disease afresh.

Among the many varieties which may be severely attacked by powdery mildew are Jonathan, Rome Beauty, Cox's Orange Pippin, Sturmer, Cleo-

patra, London Pippin, Gravenstein, Northern Spy, and Granny Smith.

### Control Measures.

1. Badly mildewed twigs and terminal buds should, as far as possible, be cut out and burned during the Winter. This procedure is essential.

2. Spray with lime-sulphur, wettable sulphur, or colloidal sulphur at the "spur-burst" stage, and with the lead arsenate applications.

## Fruit Fly Control

### Importance of Orchard Sanitation.

That 90 per cent. of the Fruit Fly in N.S.W. orchards could be destroyed by primary control measures was the claim made by Mr. W. B. Gurney, Departmental Entomologist to the Fruit Industry Commissioner, Mr. McCulloch.

He said it had been proved that growers could eliminate the Fly by picking up the infested fruit off the ground before the maggots reached the soil. Maggots left the fallen fruit within three days, therefore it was necessary to pick the fruit up every day.

Asked whether suburban backyard growers aided the spread of Fruit Fly, Mr. Gurney said that the Fly had a tendency to remain where it was bred, but where there was no fruit it might spread to a neighbouring property where fruit was grown.

Loquats were a menace and should not be grown except as a commercial crop. Guavas were a serious menace.

Continuing, Mr. Gurney stated he had been trying for years to get an Act through to stabilise spray materials, so that commercial firms would be forced to manufacture according to the Department's specifications. The Department was at present endeavouring to discover a non-arsenical spray for Codling Moth and Fly. Similar experiments were being conducted overseas, but no satisfactory results had yet been achieved.

## Internal Cork of Apples

### Borax a Corrective.

THE trouble generally termed "Internal Cork" of Apples has been noted in orchards in Australia and New Zealand. Reports from N.S.W. indicate that the defect or deficiency disease has been found in Apples grown in the Kentucky and Glen Innes districts, on the Northern Tableland, and in parts of the Orange district. The application of borax has been found a successful corrective.

Mr. H. Broadfoot, special fruit instructor, states that where borax was applied to the soil last season at the rate of 1 lb. to the tree it would not be necessary to make a further application at this time.

Apple and Pear trees which were not so treated last year, however, should receive the application as soon as possible; as an alternative to distributing the borax as powder to the soil, however, it could be applied during the calyx or first cover spray for Codling Moth, or it could be combined with the lead-lime sulphur spray.

A one per cent. solution (or 1 lb. to 10 gallons) would be sufficient, and this would not only require a much smaller quantity of borax, but dispense with the labor involved in spreading the powder.



**"Stand by to repel boarders!"**

— with Gargoyle WHITE Oil

A clean crop is the "bread and butter" of orchardists; but some treat it as a matter of personal pride to prevent the Codlin Moth having the laugh on them! Crops CAN be kept clean (and that means more profitable) by a regular, comprehensive spray program with Gargoyle WHITE Spraying Oil as chief summer control medium plus either lead arsenate or nicotine sulphate, according to the type of infestation. Gargoyle Spraying Oils are all perfectly compatible with all other insecticidal and metallic fungicidal sprays that are either highly acid or highly alkaline. Use this famous pioneer Spraying Oil throughout the Summer and keep your trees cleaner and healthier — for it has no superior in the horticultural world.

# Gargoyle WHITE Spraying Oil

# Tasmania

SEASONAL ORCHARD NOTES — PRUNING, CULTIVATION, SPRAYING — GROWERS NOW MORE OPTIMISTIC — AGRICULTURAL DEPT. APPRECIATED — THE QUESTION OF VARIETIES FOR RE-WORKING — COMMODITY BOARD PROPOSED FOR BERRY GROWERS.

By Our Correspondent.

**S**EASONAL WORK is progressing very well the last few weeks the weather having been much better, it has allowed pruning and ploughing to proceed with little interruption.

Pruning is completed in many orchards and well advanced in nearly all, and the buds in most districts seem to be well nourished and plump.

Ploughing is well in hand as a rule. Spray outfits are being overhauled and everything got in readiness for the coming season.

There is a

### More Optimistic Spirit

evident amongst the growers this year, owing to better returns. Many growers are clearing up any available land they have suitable for grass, and it is noticeable the number of sheep that these odd patches carry.

Many acres of the poorest class of orchards have been grubbed and laid down in grass, but this will not reduce the total amount of fruit grown, as the reworked trees are coming back into bearing, which will offset the areas grubbed and patches of good young orchard are also coming into bearing, so Tasmania's total output will still increase.

It may be of interest to those readers who use lime sulphur to be reminded that rubbing the hands and face with any suitable acid, such as Lemon juice, Apple juice or vinegar will protect the skin from the caustic action of the lime sulphur which in windy weather causes a lot of inconvenience to those using it.

There is a welcome reduction in the price of imported pine cases and wrapping paper for the coming season.

The high price of these items last year did a lot to reduce the net return for the fruit to the grower, and to a large extent neutralised the improved prices both overseas and interstate.

The chief complaints we have received from our overseas salesmen this year are that some ships have Brown Heart amongst their cargo, and others complain of bruising. Whether this bruising is due to putting too much fruit in the case or to rough handling is hard to say. It is probably due to some of each.

The Agricultural Department is continuing the

**Packing Classes**  
throughout the fruit districts. This is a wise policy and the expenditure on this item will be fully warranted, but, of course, the full benefit will not become apparent all at once, and the classes should be continued for several years to get the full benefit.

The Department has also been instrumental in getting a Pesticide Act through Parliament, which should protect growers to some extent. Re-working unpopular varieties is still being carried on, and will have to be for some years yet, as growers cannot keep pace with the prohibited varieties that are cut off the export list in such numbers that it will take years to catch up, even if no more are eliminated for some years to come.

It is difficult to say accurately which are unwanted varieties, as different markets have different tastes. This year French Crabs and S.P.M. compare favorably in price with other varieties, and yet it has been suggested that they should be cut out.

The threatened strike temporarily upset the regularity of supplies to the Sydney market, as growers naturally sent larger quantities for a week or two for fear of being cut off, this, of course, was reflected in the easier tone of the market. However, the shipments are again down to round about 30,000 weekly for Sydney, and the price is firming. These are things the growers cannot control, even the threat of a strike disorganises the trade.

The Royal Commission being held in Sydney is being followed by a number of growers with great interest. Let us hope some good will come out of it.

Our Agricultural Department is taking a referendum of berry fruit growers to see if they wish a Commodity Board for their industry. As it is a State affair dealing with a processed article, I think it will be a "Yes" vote.

It is so much easier to control and regulate an industry dealing with a manufactured article in one State than to control an all Australian industry like the Apple and Pear industry that many who oppose the Federal Control Board for Apples and Pears are in favour of a Commodity Board for small fruit, so I anticipate the proposal will be well supported.



Scene in one of the Apple packing houses of the Tamar Valley Co-op. Co. Ltd.

I think the bulk of the Apple and Pear growers are still opposed to the proposed Control Board for that industry in its present form, in spite of the support it is receiving from the State Government. The growers are perhaps naturally suspicious of a proposal emanating from sources outside the industry and the refusal by the Government to allow them to express their opinion and wishes on the matter does not allay the dislike to the Bill.

The butter equalisation scheme was thrust on a section of the producers without allowing them (the small producers) to vote on it, the result was

that they smarted under a sense of injustice and at last it was broken down and became optional, and has been going ever since on a voluntary basis. A similar reaction may be expected concerning the present proposal. It may even result in a change in the personnel of our Parliamentary representatives next election.

It is doubtful if the new Board can achieve much more than the Apple and Pear Council would have been able to do, as so many of the disadvantages the industry is suffering from are beyond the power of any Australian Board to alter.

## Tasmanian News & Notes

### PRUNING AND CULTIVATION.

Hobart, August 17, 1938.

The Minister for Agriculture (Mr. R. Cosgrove) is in receipt of the following report from the Chief Horticulturist relative to the condition of orchards throughout the State.

#### Weather.

In general, typical Winter conditions persisted throughout July and early August, with temperatures rather below average, and rainfall in excess of normal for this period in southern localities. Heavy rains caused washaways on the steeper slopes and where recent cultivations had been carried out this was particularly severe. Alternate lands sown with green crops have proved very effective in preventing this type of erosion, and where these crops have been ultimately disced or chopped in with the rotary hoe, results from this point of view have turned out better than where ploughing has been adopted. Rainfall records obtained from the Commonwealth Weather Bureau for the main centres during July are as follows:—Hobart, 378 points, compared with the average of 213; Franklin 488, compared with 297, and Launceston 84, compared with 305.

#### Pruning and Cultivations.

Owing to the wet conditions in Southern districts, little progress has yet been made with the usual cultural operations, and pruning operations are still in full swing. Following the experiences of last season, more buds are being retained in such overseas export varieties as Sturmer, with a view to the regulation of size. It must be remembered, however, that rains were fairly regular throughout the latter part of the last growing season, and this cannot be depended upon from year to year. With regard to the prospects so far indicated by bud development, Alfriston seems rather erratic, but Jonathan is well furnished with buds in almost all districts.

#### Spraying and Pest Control.

A considerable increase in the number of stationary spray plants is

again recorded, and mobile units are taking a secondary place. The latter type cannot, however, be entirely disregarded, for they will form the best means for handling small scattered areas, young trees and isolated blocks of Pears, stone fruits, etc., in large Apple orchards.

It is evident that the Red Spider infestation last year will lead to the application of prepared oils in larger quantities this month.

Many growers seem to be under the impression that the "green tip" application of Bordeaux following prepared Winter oils is less effective and does not adhere to the trees sufficiently to be of much use. This, however, does not affect the issue, for it is the young developing green leaf tips which the grower is trying to cover with the Bordeaux (not the branches), and if the spraying has been done at the correct periods these were not showing when the dormant oil was applied. As mentioned in the previous orchard notes, if Red Spider eggs are present in quantity and effective control is desired, prepared oils should be used at a strength of 1:12.

Winter control measures for the Codlin Moth are being carried out very generally; tree scraping, Codlin Moth bandage removal and the treatment of props and orchard picking cases all assist materially in the reduction of this pest.

Very little shed stored fruits now remain to be sent interstate, and with the exception of Democrat, Crofton, and Rome Beauty, most varieties have been cleared. Cool stored fruit is almost confined now to the late keeping types and these are turning out much better than the intermediate varieties.

#### Reworking.

Contrary to expectations, variety conversion is likely to be carried out on just as large a scale as last season, and the demand for scions is reported to be large. The varieties in favor are Lalla, Red Jonathan and Red

(Continued on page 10.)



A unique advertising method.

## Fruit Trees & Fruit Tree Stocks

Splendid Stock of Healthy Plants Available.

APPLES, PEACHES, PEARS, PLUMS, APRICOTS,  
CITRUS, ETC., PACKED AND DESPATCHED  
TO ALL PARTS OF THE WORLD.

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### "WONGA" HIGH PRESSURE KNAPSACK

The "Wonga" Knapsack Spray Pump is the only hand lined machine on the market and is coated with a metal compound which possesses much greater acid-resisting qualities than lead. The valves — another special feature — are made from selected solid brass and are situated at the bottom of the pump. It is also unique in its three distinct sieves.

The pressure patented regulator assures even, efficient working. It is easy to handle and comfortable to carry.

Weight when empty - 15 lbs.  
Capacity - 3½ gals.

"WONGA" Knapsack Duster, 20 lb. capacity 80/- Hand Dusters, 4/6, 7/6, 12/6.



**PRICES:**  
Brass 90/-  
Acid  
Resisting  
105/-

### CASKS

Spraying and Meat Pickling



#### SPRAYING CASKS.

50 gallon, open one end, 12/-; 42 gallon, solid oak, 8 hoop, complete both ends, 10/6; 42 gallon, open one end, 7/-.

**CASKS:** 42 gallon size, originally held maize syrup; once used only. Complete, 12/6. Open one end, 10/6. 20 gallon preserved ginger casks, complete, 7/- each. 10 gallon sauce casks, 5/- each.

**TUBS:** 20 gallon meat pickling tubs, 7/- each. 50 gallon size, 22/6 each.

### BUCKET SPRAY PUMPS

Most useful for Spraying, Lime Washing, Car Cleaning, etc. Has Adjustable Bordeaux Nozzle, which will make a fine or coarse spray. Will throw a jet of water 50 feet.

**PRICE** ..... 22/-

#### GARDEN HOSE.

60 feet Coils, ½ in. x 3-ply, guaranteed 3 years. Complete fittings, 35/-; ¼ inch, ditto, 45/- Freight paid Vic.

**CANVAS IRRIGATION HOSE,**  
3 in., 6d. ft.

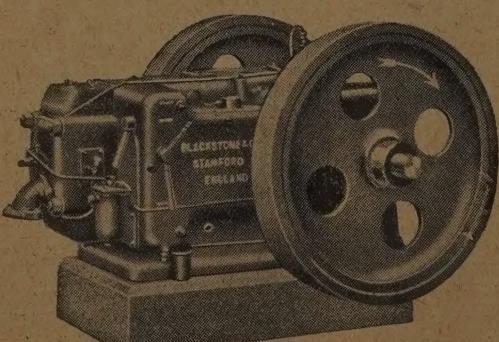
**PUMPS:** Semi-rotary, for pumping water, ½ in., 25/-; ¾ in., 27/6; 1 in., 32/6 each. Petrol Pumps for Drum, complete, ½ in., 37/6 each; 1 in., 42/6 each.

**SPECIAL! Hand Model ORCHARD PLANT and VEGETABLE DUSTERS.** Large size, 21 inches long x 6 in. diameter cylinder, holds 3 to 6 lbs. of powder. Pump gives strong, smooth blast, covers large area. Price, 3/6 each. Small size, for Home Garden use, 14 in. x 2½ in. dia., 1/6 each.

#### HUDSON'S STORES

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Near Spencer St. Phones: M 5873, M 5874.

## BLACKSTONE DIESEL ENGINES



ARE SO GOOD  
THAT PARIS (France) DEPENDS  
SOLELY  
ON 150 BIG BLACKSTONES FOR  
ITS DAILY WATER

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PTY. LTD.**

Head Office:  
WEST FOOTSCRAY. — 598 Bourke St., MELBOURNE.

### TASMANIA (Continued).

Cox, with a fair demand for Red Crofton, Red Rome, Cox, Granny Smith, Golden Delicious and Alfriston. The trees which are being changed over include amongst others Scarlet, French Crab, Duns, Duke of Clarence and Tasman's Pride.

Pears are also receiving attention, with Packhams Triumph, Doyenne du Comice and Winter Cole in demand. Growers are again reminded that if they wish to receive supplies of scions they should get into touch with the District Inspectors without delay, or write to the Department of Agriculture, Hobart, direct.

#### Stone Fruits.

Extensive Bordeaux applications have been made this year on Apricots, and should serve to check the Shot Hole noticed last season. Tar distillates were also used to an increased extent on Peaches during the past 6 weeks for the control of Aphis; Bordeaux applications for the control of Peach Leaf Curl should be made immediately. The show of flower buds on both Apricots and Peaches is very promising, and provided the weather during the blossoming period is favorable, a good set will be ensured. Plums are coming along rapidly, but appear to be variable as regards blossom development.

Reworking of both Plums and Apricots has commenced.

#### Berry Fruits.

Practically all Raspberry plantations have been pruned and hoed. Canes have rarely been stronger and though anthracnose developed in many areas, it was possible to eliminate much of this by removing affected canes, or shortening back affected tips.

Black Currants have been planted out more extensively than for some years, and a number of old areas removed. Strawberry planting has recommenced in earlier districts, and signs of crown growth are becoming evident on plants which were set out in early Autumn. Although frosts have been fairly frequent, few of these have been severe, and snow has afforded some protection to beds on higher levels. Growers at lower levels have already commenced to clean off dead and diseased crown leaves and carry out the first hoeing.

#### FRUIT TREES

ALMONDS, APPLES, PEACHES, APRICOTS, PLUMS, QUINCES, etc., in best sorts.

Extra strong trees 1/6 each, 15/- dozen. Usual size 1/- each, 10/- dozen, 75/- per 100.

CHERRIES on Mazzard 1/6 each, 15/- dozen, 75/- 100.

GRAPE VINES, 6/- dozen, 35/- 100.

GOOSEBERRIES, LOGANBERRIES, Currants 4/- dozen, 25/- 100.

STRAWBERRIES 2/6 100, 14/- 1,000.

RASPBERRIES 1/- dozen, 6/- 100.

ROSES: Choice: 1/- each, 10/- dozen.

Standards 2/3 each, 25/- dozen.

Maples, Genista, Cotoneasters, Ash, Oaks, Elms, Poplars and big variety of shrubs and trees, 1/- to 4/- each, according to size and kind.

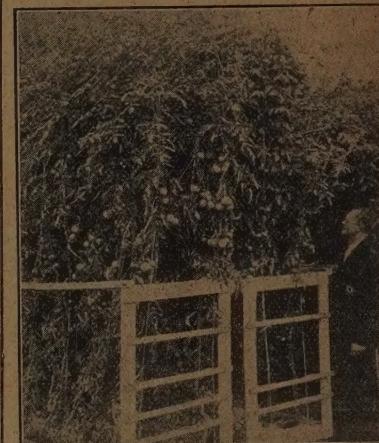
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Nurserymen, Emerald, Victoria.

## Crops Without Soil

Phenomenal Yields.

ELECTRICITY is contributing more and more to the primary producer and is becoming recognised as a necessity on the farm or orchard for purposes other than mere lighting.

One of the most outstanding developments of recent years is the growing of crops without soil, in which electricity is harnessed to provide heat for the plants. Our illustration is by courtesy of the State Electricity Commission of Victoria and shows the growth of Tomato plants without soil.



Tomato plants grown without soil. Note the height and heavy bearing.

The new method challenges science and agriculture in experiments conducted in California with heated nutrient solutions instead of natural soil. Crops have been grown in shallow tanks containing chemicalised water by Dr. W. F. Gericke, of the University of California. The seedlings or plants rest on a wire mesh covered with peat moss or straw and are again covered with straw. As the young plant grows it draws its nourishment from the solution below.

The necessary heat is provided by electric cables in the tank, varying from 75 to 80 degrees Fah. Reports state that Tomatoes so grown have yielded as high as 217 tons per surface acre, against the normal yield of about five tons. Potatoes yielded 2,500 bushels per surface acre under this system, whilst yields from other vegetables have been phenomenal.

The nutrient solution consists of some eleven elements, mixed in definite proportions and the quantity adapted to the crop and the climatic conditions. It is stated that four different crops can be grown in the same tank.

Though still in its infancy, the growing of crops without soil is something that causes wonderment and suggests that even more wonderful results will yet be discovered.

### ENGLISH READER'S APPRECIATION.

Co. Durham, England.

March 25, 1938.

The Editor,  
"Fruit World and Market Grower."  
Sir,

The writer would like to take the opportunity of saying that he has always looked forward to receiving copies of your Journal which, in its particular class, he considers to be the best one published in any country. The Eaglescliffe Chemical Co. Ltd.

(Signed) H. E. CORY,  
Managing Director.

# VICTORIAN NEWS AND NOTES

## Report of Apple and Pear Demonstration Plots, 1937-38

IN 1936, the Department of Agriculture established a series of demonstration plots in the principal Apple and Pear growing districts of Victoria, with the object of demonstrating on a commercial scale, its recommendations for the control of two major pests of Apples and Pears, namely black spot of Apples (*Venturia inaequalis*), black spot of Pears (*Venturia pirina*), and codling moth (*Cydia pomonella*) of both these fruits. The initiation of the work was made possible by funds provided by the Commonwealth Government and the readiness with which orchardists, in the various districts, made available their properties for this work.

At the beginning of the 1937-8 season, insufficient funds were available to ensure continuation of the work, but fortunately the orchardists concerned willingly made available their orchards and equipment for a further season, and provided the bulk of the spray materials. This gesture was greatly appreciated by the Department as otherwise the work would have been seriously curtailed. Financial assistance has been made available for the plots to be continued during the 1938-9 season.

### Codling Moth Control.

In setting out to demonstrate the control methods for codling moth, it was considered fundamental to "time" the spray applications according to moth activity throughout the season.

In order to appreciate the significance of this method, it is equally fundamental to have a clear understanding of the more important features of codling moth life history.

During Spring, the over-wintering larvae pass into the pupae condition, in which they remain for approximately three weeks, and then, given favorable temperature conditions, emerge from the cocoons as adult moths of the Spring brood.

This emergence usually commences about mid-October and continues until late November or early December. At some time during this period the number of moths emerging reaches a maximum and then declines until the brood has completely emerged.

The first important consideration is that in most fruitgrowing districts of Victoria, there are normally two or

### three broods of moths

during the growing period of the fruit, and since each brood may be spread over a period of four to six weeks, it is obvious that some form of systematic spraying is required throughout the whole season.

The next important point to consider is the amount of activity displayed by moths after they have emerged. It is this activity that will determine the number and time of application of sprays. As was mentioned earlier, temperature exerts a profound effect on egg-laying, as it does, in fact, on all stages of life history. The number of days favorable for egg-laying (i.e. codling moth activity) may vary tremendously from one brood to another, and from one season to another.

Fortunately,

### codling moth activity

can be recorded remarkably accurately by the use of sensitive lures, which are simply jars containing attractant liquid in which the moths are trapped. Moths are trapped only

when temperature conditions are favorable for flight and egg-laying, and a well kept lure is remarkably sensitive in this regard.

The primary object of timing sprays, therefore, is to ensure that they are applied during periods of maximum moth activity so that they will be most effective.

The actual technique of timing sprays demands a knowledge of moth activity, life history and local conditions, and cannot be resolved into a simple formula, since seasonal conditions exert such a profound effect.

Each brood is sufficiently active and of sufficient duration to require two, and sometimes three sprays. Each spray applied has, of course, a certain effective period which enables minor fluctuations of moth activity to be provided for.

Experience gained in the 1936-7 season indicated that all cover sprays for the control of codling moth should be timed with the aid of lures, and that the only spray not so timed should be the calyx spray.

The actual relation of a spray to a peak of moth activity depends on the probable incubation period at the time. The average incubation period of eggs in the Spring may be approximately ten days, while in the Summer it may be as low as five days. But at peak periods of activity, when temperatures are very favorable, the incubation period may be very much less than the average. It can be seen that generally there is more time available to complete a given spray in the Spring than in the Summer. To be on the safe side, however, it is highly desirable that growers should be able to thoroughly spray their entire orchard in four or five days following a peak of moth activity.

### Two main spray

schedules were used on the Apple plots, one comprising calyx and cover sprays of arsenate of lead only, and the other employing Summer white oil to replace the latter cover sprays of arsenate of lead.

The object of using the latter schedule is to overcome the arsenical residue problem, and to do this, it is not desirable to apply arsenate of lead within two months of harvesting the fruit.

The time at which oil was introduced varied according to conditions in each district, but the tendency on demonstration plots has been to introduce it for control of the first brood in November, particularly in warmer inland districts. It is practically impossible, however, to do this where black spot control demands the use of lime sulphur spray applications which may react with white oil to cause extensive spray injury.

On the majority of plots, the total number of sprays varied from six to eight, and "B" schedule plots included two to seven white oil sprays.

At Stanley, where only one brood of moths emerged, only three sprays (arsenate of lead) were required, while at Quantong nine to eleven sprays, according to variety, were used, chiefly because of the excessive codling moth activity in January and February.

Owing to the shortage of water at Harcourt and Strathfieldsaye, it was necessary to abandon spraying after mid-January, except on a small area of Granny Smith Apples at Strathfieldsaye. At the time spraying ceased, infection was of the order of 5

per cent. on these plots, and the results of a complete season would have been extremely interesting, especially in view of the fact that white oil had been introduced unusually early in the season (November 11).

### White oil emulsion

sprays were used on eleven of the twelve Apple plots, and in nine of these cases the plots were divided into two similar areas, one of which was sprayed with arsenate of lead throughout the season, while the other received white oil emulsion sprays instead of the later cover sprays of arsenate of lead. During the two seasons that this procedure has been adopted, the average infection from all plots receiving both schedules has been practically the same, showing that white oil is at least as effective as arsenate of lead as a control for codling moth. It has the additional great advantage of overcoming the arsenical residue problem.

During the 1937-8 season, the comparisons could be made on southern plots only, and it is, therefore, not possible to state which, if either, of the two insecticides is the superior in the warmer inland districts. The excellent results obtained at Harcourt (W. Eagle) and Strathfieldsaye during the past season, indicate that Summer white oil carefully timed and thoroughly applied will provide effective control of codling moth in those dis-

tricts. In both of these cases, white oil was introduced into the spray schedule early in November for the control of the first brood and was used for the remainder of the season.

Arsenate of lead sprays were used almost exclusively for the control of codling moth in Pears.

The all-important calyx spray was applied approximately three weeks after petal fall, advantage being taken of the fact that the calyx of Pears close slowly and can be more effectively filled with spray at this delayed stage, provided the young fruits have not turned over. In one instance, Tyabb, one cover spray of white oil was used in accordance with the orchardist's normal practice of applying oil during the latter part of the season to avoid excess arsenical residue.

The control of codling moth obtained in certain late varieties of Pears, such as Josephine and Packham in the Goulburn Valley, is not always satisfactory. While these varieties are evidently more susceptible to late infection than certain other varieties, such as Winter Nelis, most varieties of Pears approaching maturity appear to present similar difficulties in control.

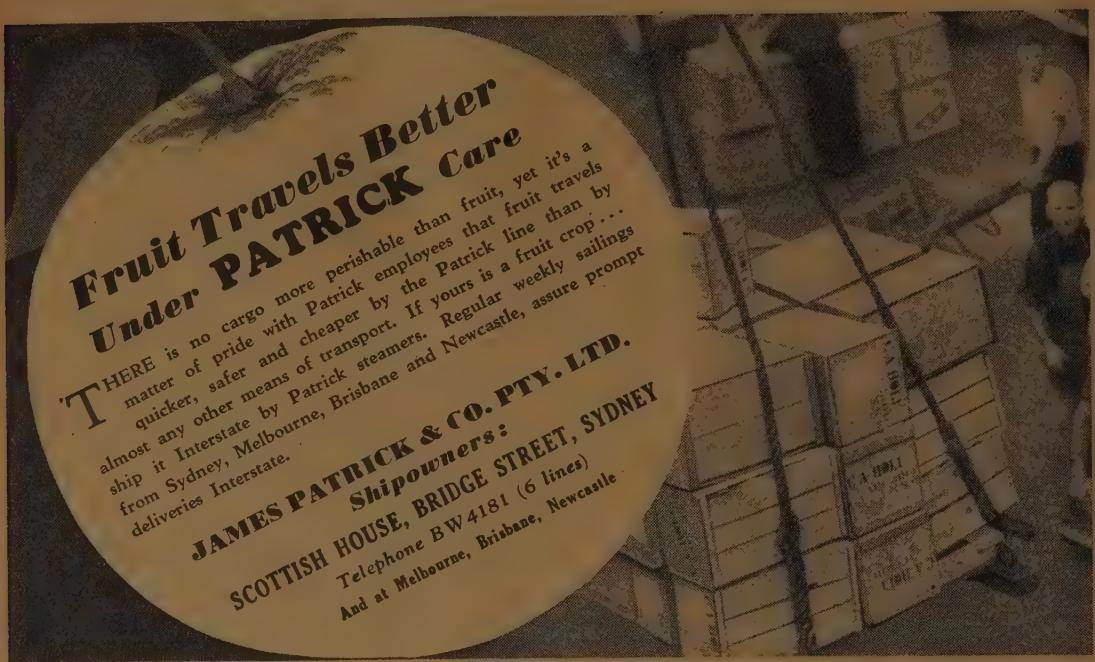
The principal reason for late infection is probably that vital sprays are neglected for other work or missed because of irrigation.

(To Be Continued.)



"DELICIOUS" APPLES.

328 trees, 10 years old, averaged six packed cases per tree at the orchard of Mr. G. W. Peart (C. J. Goodman), Bairnsdale, Vic.



## Somerville

Under the auspices of the Somerville Fruitgrowers' Association, a well-attended meeting of fruitgrowers was held at Somerville on August 23. Mr. L. G. Cole, Past-President of the Cool Stores Association, stated some of the problems connected with Apple storage had been overcome by experimental work at the Tyabb Cool Stores, where it was observed that Jonathans kept best at a temperature of 35 deg. F. Apple Week was a valuable enterprise. This function should be held late in March or early in April. The Apple and Pear Export Control Bill had been hurriedly brought forward by the Commerce Department, without adequate opportunity for growers to study the measure. He was not in favor of the Bill as drafted.

Mr. W. P. Hutchinson also expressed concern over some of the implications involved in the proposed Export Control Act; much further information was needed.

It was resolved that a meeting of fruitgrowers from the Mornington Peninsula be held at a date to be fixed, and that endeavours be made to have present the Acting Minister for Commerce, Mr. Cameron, and Mr. J. V. Fairbairn, M.H.R., as more than 300 growers on the Mornington Peninsula area were concerned over the proposed legislation.

## APPLE OF SODOM.

### A Deadly Poison.

It was recently reported that a child at Port Fairy, Victoria, was blinded by juice of a poisonous weed known as Apple of Sodom, entering the eye of the victim. It is further notified that this weed grows in the metropolitan area, that it was proclaimed a noxious weed in 1928, and that landowners are required to destroy it when found on their property.

The juice of this weed, especially at the berry stage, has been known to be fatal swallowed. The weed belongs to the potato family and may grow to a height of three feet. It has prickles on its leaves which grow to about six inches in length. Among the symptoms reported are dimness of sight, dizziness and vomiting. Farmers are warned against the weed and children are urged not to eat its yellow or green and white berries.



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## VERMONT FIELD DAY.

Under the auspices of the Victorian Fruit Marketing Association and the East Burwood Fruitgrowers' Association, the Annual Field Day will be held at the orchard of Mr. F. G. Beet, Railway-road, Vermont, on Thursday, October 6, commencing at 10 a.m. A full programme of lectures, demonstrations and cultural operations is being provided, together with exposition of top working. An attendance of several hundred growers is expected. Catering facilities are being provided.

## RED HILL.

The Annual Show of the Red Hill (Victoria) & District A. & H. Society will be held on Wednesday, October 26, at the Show and Recreation Grounds, Red Hill. Entries close on October 24. Further particulars, schedules, entry forms, etc., can be obtained from the Secretary, J. E. Holland, Red Hill; phone Red Hill South 3.

# VICTORIAN NEWS AND NOTES—(Continued)

## Field Day at Pakenham

### PRUNING — TOP WORKING — ADDRESSES ON APPLE PRODUCTION AND DISTRIBUTION.

UNDER THE AUSPICES of the Gippsland Fruit Marketing Association and the Victorian Fruit Marketing Association a most successful Field Day was held at the orchard of Mr. J. J. Ahern, Pakenham, on Friday, August 12. There were about 150 present from districts between Dandenong and Pakenham, also from Ringwood, Croydon, Wonga Park, Doncaster, Garfield, Tyabb and other centres.

Mr. J. B. Mills, President of the Australian Apple and Pear Council, spoke on Apple marketing. He pointed out that between nine and ten million bushels of Apples were produced in Australia annually, and after deducting the quantity exported, six million cases were left. This quantity should be easily absorbed if the public were given justification to use Apples. Previously the Apple was regarded merely as a food and sometimes as a luxury, but now the great value of the Apple from the point of view of health was being recognised. Following Apple Week, he had visited 30 shops and all reported increased Apple sales. The distribution of Apples to schools was of great importance, and went further than to the children, the booklets accompanying the gifts went into the homes and spread the health story.

Continuing, Mr. Mills stated he had taken up the matter of presenting the new facts regarding the health properties of the Apple with the overseas publicity committee, suggesting that educational propaganda similar to that now being used in Australia should be conducted in England in co-operation with other Apple producing countries. Concluding, Mr. Mills said that the story could be told in many different ways until no one would refuse to use Apples whenever possible, realising the health-giving qualities contained therein.

Mr. L. G. Cole, Past-President of the Cool Stores Association, mentioned the assistance given by the Cool Stores Association in financing the publicity campaign. He praised Apple Week, stating his own sales had increased 100 per cent., but recommended it should be held when the fruit was at its best—when being picked from the trees.

Mr. F. M. Read, Chief Inspector of Horticulture, stated he was particularly pleased to have heard Mr. Mills and Mr. Cole express confidence in the future of the industry, provided a sound system of marketing be developed; from the good work that had been done in the last few years he had no doubt that this could be done.

While leaders in the industry were concerned with marketing problems, the Department was primarily concerned with crop production. There are those who had said it was ridiculous to increase the production of Apples by better methods when so much difficulty was being met with in disposing of the crop. This view, of course, was untenable, because, so long as we continued to operate under our present economic system, we were forced to reduce our cost of production to the level of our competitors. All thinking people would agree that the future of the industry very largely depended on the ability to produce the very highest quality fruit at a competitive price, and that the work of the Department to this end,

far from being ridiculous, was an absolute necessity.

"There is another point," continued Mr. Read, "at which our work meets the marketing problem, and it is this, that there is a tremendous variation in the yield and the profit obtained from one orchard to another. I do not think there is any other industry in which this variation in result from one holding to the next is so striking, and it frequently results in the marketing problem being discussed in terms of the man who is not perfectly efficient on the production side. It seems to me that, at the present time, the efficient grower, although not enjoying actual prosperity, is still in a solvent position, while the least efficient growers are in a deplorable position because of low prices. Now it is probably impossible to make every Apple and Pear proposition in Victoria a payable one, but the Department feels that a tremendous amount can be done to bring the less efficient growers somewhere up near the most efficient, and from the work that has been carried out in the last few years on our Demonstration Plots in Apple and Pear districts with money provided from the Commonwealth's grant to the Apple and Pear industry, very definite improvement is noticeable, and the Department feels most confident that, if reasonable facilities be granted to it, its instructional work will have a most obvious effect.

"Apart from the Demonstration Plots to which I have referred, other new avenues are being explored. The Department has recently acquired apparatus for the making and projection of talking pictures, the first of which, on the horticultural side, is being made on the subject of reworking of fruit trees."

Mr. T. Kneen, Research Officer, Department of Agriculture, stated as follows:—

"Demonstration Plots have been established in the principal Apple and Pear growing districts, with the object of demonstrating the Department's recommendations for the control of Black Spot and Codling Moth. The plots are extremely valuable in making it possible to modify the recommendations to suit a wide variety of climatic conditions, and, by establishing a system of spray advice, to assist growers in carrying out the Department's recommendations.

"The plots have focussed attention on the need for greater standardisation of spray materials such as lime-sulphur and white oil emulsion, chemical bands, etc. For example, lime-sulphur concentrates now have a very much higher polysulphide content than previously, and their application to trees at the old strengths resulted in extensive spray injury. For the coming season orchardists will be supplied with lime-sulphur of which the polysulphide content has been fixed within narrow limits by recent legislation, and it is anticipated that this action, combined with a reduction in strengths of spray mixture, will eliminate largely the spray injury previously experienced.

"The results obtained by the Department for the control of Black Spot and Codling Moth have been extremely satisfactory. The russet problem is being watched very closely in relation to Black Spot spray

## Failure of Coliban Irrigation System

### SERIOUS PLIGHT OF HARCOURT AND DISTRICT FRUITGROWERS.

Severe losses were experienced by fruitgrowers in the Harcourt district last season through the failure of the Coliban water supply system.

At the August meeting of the Victorian Fruit Marketing Association, Mr. J. B. Mills directed prominent attention to this matter.

As a result a committee was formed to prepare a case for presentation to three Parliamentary parties — The United Australia Party, the United Country Party and the Labor Party, also to give the required information to the press. These matters were attended to. The following is a summary of the statement which was prepared:—

THE FACT that an important section of one of our primary industries is in danger of total extinction does not appear to be as yet fully appreciated. Because of the urgency of this matter public attention is directed to it, as only prompt action can prevent a major disaster.

Owing to the failure of irrigation water supplies the pioneer fruit-growing district of Harcourt, near Bendigo, suffered losses estimated earlier at £130,000. Since the compilation of this figure growers have had the opportunity of examining the damage to trees, and it is now certain the loss exceeds £150,000.

Experienced orchardists in no way exaggerate the gravity of the situation when they state that another year with light watering—or, as seems certain, no water at all—it is hopeless to expect the trees to survive, let alone produce fruit.

Here are some relevant facts. The area under fruit at Harcourt is 2,780

schedules. For Codling Moth control, lures had proved to be essential to secure better timing of the spray applications and, at the same time made it possible to use white oil emulsion sprays more effectively as a control and as a solution of the arsenical residue problem.

"At Pakenham, Codling Moth control was not difficult during the past season, four spray applications only being required, and not more than 3 per cent. of the fruit was infected. Black Spot control in the Delicious variety was a little more difficult than either Yates or Jonathan, and 7.5 per cent. of the fruit was rejected on this account. For the coming season it is proposed to use two Bordeaux mixture sprays on this variety at the Green Tip and Finger stages.

"Particular attention is drawn to the necessity of applying the 'green tip' Bordeaux mixture for Jonathans at a slightly earlier stage than that for other varieties otherwise russet injury is likely to be experienced."

Demonstrations of top working were given by Messrs. F. J. Greatorex (Dept. of Agriculture) and D. C. Black, and of pruning by Messrs. F. Kennedy, T. Fuller, A. Apted, D. C. Black and G. Priest.

At the instance of Mr. Ahern, a vote of thanks was conveyed to the lecturers and demonstrators, and Mr. Ahern was thanked for making his orchard available for this highly successful Field Day.

acres, all of which will have to be irrigated from the Coliban System.

The necessary annual watering consists normally of 1,600 to 2,000 acre feet. Last season (1937-38) there was available in the Coliban System at the commencement of the Summer about 14,000 acre feet, out of a total holding capacity of 40,000 acre feet. Some growers received two waterings totalling 600 acre feet, other growers received no water at all. Of the 40,000 acre feet capacity only 44 per cent. of the water is available, as the rest is lost by evaporation and seepage. At the present time only 3,400 acre feet of water is stored—hopelessly insufficient for the needs of Bendigo, Castlemaine and other towns—quite apart from the needs of irrigators.

It takes many years to establish the fruitgrowing industry. Yet the valuable orcharding industry at Harcourt—a national asset—is facing utter ruin.

Fruit trees were first planted in Harcourt in 1859. Commercial export commenced in 1886. In 1933 the total exports (apart from quantities supplied for the Australian trade) were 404,000 cases. Last season's exports, when insufficient water was available, were below 100,000 cases. 130 families are here engaged in fruit production. It is of interest to record that irrigation was commenced at Harcourt in 1881 and about this time the State Government was paying a bounty on an acreage basis to establish orchards in this district.

The foregoing figures relate only to Harcourt, the centre of the fruit-growing area in the Coliban Irrigation System. The districts of Fryers-town, Elphinstone, Strathfieldsaye, Campbells Creek, Sutton Grange, Junortown and Axedale would practically double the figures already given.

What, then, is the remedy? Whereas it is proposed to construct fresh storages in the present Coliban Catchment Area, over a period of years, such will certainly not be ready for the coming season. The seriousness of the position admits of no delay if the impending tragedy is to be averted.

Therefore it is urged:—

1. That the City of Bendigo should be supplied by pumping from the Waranga System, thus relieving the Coliban System of this heavy demand, and
2. That the Ashbourne cut from the Campaspe River be immediately enlarged to enable the Coliban system to be replenished, if water becomes available from that source.

Something must be done at once, if the good name of Victoria is to be preserved. Whilst we see suggestions that Australia offers opportunities to new settlers, the descendants of pioneers, to the third generation, skilled producers on established properties, are in dire danger of having to walk out.

Since the foregoing was made public, the question has been raised as to the availability of water from the Waranga system, which of itself is considerably depleted. The utilisation of pipe lines would save the present heavy losses of water by evaporation and seepage.

# Twelfth International Horticultural Congress

Germany, August 12-17, 1938

THIS CONGRESS will be held in Berlin during the dates stated, and will be attended by delegates from all over the world.

So important is the Congress considered in Germany that the "Gartenbauwirtschaft," the official organ of German horticulture, printed on June 2 a special edition devoted entirely to the horticultural industry and the programme to be presented at the Congress.

Many scientific papers will be read and exhibits from many countries will

be staged. In addition, many tours will be taken to farms, orchards, experimental stations and research farms following the Congress.

The Reich Minister for Food and Agriculture, Herr Walther Darré, is the patron of the Congress, while the managing president is Herr Johannes Boettner. About forty countries are expected to participate, and the sessions will be held in the Kroll Opera House. The programme is very comprehensive, being divided into twenty sections.

Leading experts of various nations will speak on growing, cultivation technique, and distribution, and pomiculture, olericulture, the cultivation of ornamental plants, seed growing, and plant protection are among other subjects which will be dealt with. Other reports to be submitted will cover storage and stock on hand, the handling and utilisation of fruits and vegetables, and their respective influence on nutrition and in medicine. The nomenclature of plants and species will also be discussed.

Thus the Congress will afford to its participants ample opportunities for a personal interchange of knowledge and experience, and the delegates will be able to take back to their own countries new ideas in all branches of horticulture.

Then, too, an interesting social programme is being arranged, including receptions by the Reich Government and the Mayor of Berlin, and entertainments by the Central Association of German Horticulture and the Central Association of German Viticulture. The opportunity to visit and inspect five different branches of most prominent German horticultural enterprises is also offered, as well as a visit to the "Reichsgartenschau" (Reich Garden Show) at Essen.

This show (which is held in a different German city each year) will be open from April to October, and is expected to attract many visitors. The Congress delegates will go to Essen in six groups. The trips will lead through the most important horticultural districts.

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Orchardists and vignerons visiting this year's Royal Melbourne Show will be exceptionally interested in the exhibit of Sunshine and Massey Harris machinery, for it contains a number of entirely new machines and implements built specially for the fruit-grower. H. V. McKay Massey Harris Pty. Ltd. have always catered for the requirements of the orchardist and the machinery in this section forms a not inconsiderable portion of their entire exhibit.

Some of the machines which will be displayed will include the following: The Sunmassey Low Wheel Orchard Cultivator, with spring or rigid tynes, which is made in 7, 9, 11 or 13 tyne sizes; the Sunshine Massey Harris Tractors, together with the two new special tractor implements and adjustments for use in orchards; power lift and hand operated attachments are provided on this tractor to carry mouldboard ploughs, disc cultivators, grubbers, disc and tyne cultivators. The new Sunshine Spraying Plant, with a 2 h.p. Sundial Petrol Engine—this spraying plant can be used on any truck or dray; the new Sunreach Disc Cultivator is designed to do away with the excessive amount of hand chipping under trees. This implement not only cultivates under the trees, but the control coulters make a rudder which enables the driver to angle the implement around tree trunks.

The 2-furrow Sungrade Stump Jump Reversible Disc Plough will be exhibited together with a number of other implements especially designed for orchard and vineyard work. A cordial invitation is extended to all growers to call at this stand during the Show.

### HAWKESBURY CITRUS GROWERS' ASSOCIATION.

More than 100 citrus growers attended the annual meeting of the Hawkesbury Citrus Growers' Association held at Windsor recently. Amongst the visitors welcomed by the President, Mr. Charles Kaiser, were Messrs. J. N. Lawson, M.P., R. B. Walker and Shand, M.L.A.

The annual report disclosed the fact that the membership was nearly double that of last year, totalling approximately 175. This, it was stated, was the result of the threat of the impending Fruit Marketing Organisation Bill, which impelled growers to organise in opposition.

So that everyone growing fruit in the district would thus be given the opportunity of becoming a member it was decided to alter the name of the Association to "The Hawkesbury Fruitgrowers' Defence Association."

## NEW SOUTH WALES

## Murrumbidgee Irrigation Areas

BENEFICIAL RAINS      NEW PLANTINGS OF CITRUS, APRICOTS, CLING PEACHES, ALMONDS AND OHANEZ GRAPES — SHORTAGE OF YOUNG CITRUS TREES — HIGH QUALITY ORANGES FOR N.Z. — REWORKING APPLES AND PEARS.

(By Our Correspondent.)

THE VERY HEAVY RAIN which fell during the latter part of July, has been of inestimable benefit to the Area, and although the cultural operations have been somewhat delayed owing to this circumstance, the general appearance of the farms is enhanced, as the beneficial falls of rain, which amounted to nearly two inches in some parts of the district, has revived the green cover crops, and catch crops of peas which are planted on many of the farms.

The prolonged dry spell, together with somewhat severe frosts, were having a marked effect on retarding the cover crops of tick beans which had been sown on some farms, although owing to the generally dry conditions appertaining during the earlier months of the year, not nearly so many acres were sown with these crops as is usual in ordinary seasons.

In a good many cases where the citrus trees were carrying a heavy crop of fruit, the beans were contending with the trees for the surface moisture, and the trees looked somewhat wilted, but now the picture is very different, and both crops, fruit, and trees, show the beneficial result of the most welcome rains.

The country outlying the Irrigation Areas out towards Warburn, and Benerembah, where the larger farms are situated are now showing the looked-for tinge of green, and feed is coming along, if slowly, while the wheat crops are now well assured, and with the prospect of further rains the large areas sown to wheat and oats should be a very fine sight in the course of the next few weeks.

Few people who only see the fruit farms which lie close to the town of Leeton and Griffith, or along the main roadways, around which visitors are generally conducted, can fully realise the vast extent of the areas under both dry and irrigation conditions which surround the fruit-growing parts, and specially on the portions of the settlement before mentioned, the lot of those growers who own land on the Warburn and Benerembah sections is particularly fortunate.

These farms, many of which are well over a thousand acres in extent, can irrigate one-tenth of their holding, and therefore besides having the additional chance of holding sheep on the dry portions of their land, one-tenth being irrigated provides an assurance against dry conditions, and many improvements in the way of fodder conservation are noticed in driving round the farming areas.

The large district of Murrami, which lies halfway between the two main fruit settlements of Leeton, Yanco and Griffith, is devoted largely

to rice growing, and also many hundreds of acres of permanent pasture are also in evidence.

The permanent pastures for the raising of fat lambs, are being extended, and both the Agricultural Instructors in charge of these areas are enthusiastic in the establishment of this and other means by conservation of fodder during good years to make these irrigation areas a centre in which drought will hold no terrors for the land holders who are thus fortunately situated.

During the past months, huge flocks of poor and hungry sheep have been shepherded along the channel reserves and water reserves where any sign of feed is growing, and the large main canals which in some cases were thickly grown with paspalum, are now eaten bare.

Some fruitgrowers took in large flocks of sheep in order to clean up the orchards, but in some cases the stock was so poor that many died and were either burnt or buried, while to some it has obviously not proved an unmixed blessing, and one wonders if the money received for this type of agistment has been warranted when citrus trees are seen eaten bare of leaves as high as the sheep could reach.

Fortunately, not many such sights meet the eye, and probably on those farms where vine planting predominated the cleaning up process may be an advantage.

With an improvement in the weather conditions during early August, pruning on the farms is in full sway, and where this operation has been completed, the ploughing is now either in progress or has been completed.

Where cover crops have not been planted this season, a very luxuriant growth of clovers, crowfoot and grass can be seen on most farms, which has been assisted in many cases by the liberal applications of sheep manure, and the quick grown green cover will greatly tend to improve the texture of the land when ploughed in.

#### New Plantings.

A large number of trees have been received and inspected at the local railway stations for this season's planting, and on some of the farms where reconstruction is being conducted, the stock mostly favored appears to be Apricots, Phillip Cling Peaches and Almonds, while in a few cases Prune trees of the D'Agen variety, and Angelina Plums are also planted.

On a few farms, Ohanez Grapes are also being set out, and the high trellis so necessary to the cultivation of this type of grape has already been erected, the owners having the intention of training their vines directly to this method, while in other cases where the high trellis has been

put up in previous years, the vines have been gradually reconstructed to the overhead style, and with very satisfactory results.

Some areas of Sultanas are still being worked over to Hunter River Reisling or other varieties of favored wine Grapes, and in other farms are being grubbed out and the land re-planted to either citrus or deciduous fruits.

The entire acreage on the Area planted to Zante Currants was never a large one, and this variety also is being worked over or removed, owing to the meagreness of the yields, and the uncertainty of the weather conditions which generally prevail during the harvesting period.

During the past season, one of the best for many years, the crops of Sultanas were exceptionally good, and the quality of the fruit was largely four crown, with quite a good proportion of five-crown fruit as well, but although those growers who have an acreage of this type of vine, do certainly grow good crops of good fruit, they find that over a period of years it is not a payable commodity to continue with, and they are gradually eliminating it from their holdings. Much evidence as to the yields of Sultanas and Currants was given before the Fruit Enquiry Commissioner (Mr. McCulloch, S.M.), on his two visits to the Area.

#### Oranges for N.Z.

The packing of Oranges for the New Zealand market still continues, and it is understood that each month fresh tenders are quoted for the supply required to meet the public demand, all fruit being purchased by the N.Z. Government, and distributed to their agents.

The quality of the fruit is good, and a close supervision by Departmental Inspectors is kept on the packing, so that no complaints should be made as to the condition of the fruit supplied. The Griffith producers and other sheds, are putting up an exceptionally fine pack, and it is to be hoped that a continuance of this market will result, and prices on the local markets become enhanced thereby.

Lemons on some farms were severely affected by the frosts, but the Oranges seem to have stood up to the weather conditions far better, and as the crop was removed early in the season from those farms which were known to lie in a lower lying or more frosty pocket, the general loss should not be very great, while on farms situated on a rise of ground little or no damage is noted, and the fruit is in fine condition.

Mandarins (mostly of the Emperor variety) have fetched better prices than usual, but the acreage planted to this fruit was never a large one, and a good many trees have been worked over.

On one farm in particular a very interesting lot of grafting was performed last year on Mandarin trees, and the result has been most satisfactory. Where conditions are favorable grafting of the citrus can certainly be done, but budding is more generally favored, as often the weather

#### APPLE EXPORT TROPHY.

Orient Co.'s Prize in N.S.W.  
Won by Messrs. Morris, of Tallong.

The results have recently come to hand of the London judging of the special export Apple class, the judging of which began at the last Easter Show in Sydney. Each competitor had to submit four cases, two each from two districts, one case of each variety to be judged in Sydney and the others on arrival in London.

Messrs. Morris & Sons, of Haven Park, Tallong, were awarded first prize (£10) and the silver cup presented by the Orient Steam Navigation Company.

The second prize of £5 was awarded to Mr. N. W. Ross, of Lorraine, Million Creek, Orange, and the third prize went to Messrs. Harding Brothers, of Tabrabucca, Ilford.

conditions in the Spring months are uncertain, and have proved disastrous to the newly-grafted trees.

On some farms where a proportion of the Apple trees are still too numerous for the purposes of pollination, and the variety (generally the Cleopatra or Jonathan) not approved of as a commercial proposition, the trees have been worked over, leaving the minimum number required to effect suitable pollination of the remainder. In a good many cases the side graft is favored, and last season some extremely good work was done with this type of graft. Other growers prefer to cut the tree hard back, and put in the strap graft, together with two at least bark grafts on a large limb. The strap graft undoubtedly, if successful, gives a very fine hold on the tree and generally covers the wound more rapidly than by merely placing bark grafts alone.

The side grafts have as stated, proved very satisfactory, but cost considerably more per 100 trees to put in, and require far more subsequent attention in the following up, for the removal of unnecessary shoots, and attention to the grafts which take, but if a successful take is obtained there is no doubt about the growth of the grafts, and the quick return of the tree into bearing.

Some Pears of unsuitable varieties have also successfully been worked over by this method.

#### Shortage of Citrus Trees.

There has been a very considerable demand for citrus trees for the Spring planting, but nurserymen are practically sold out, and many are already booking up for the 1939 planting, either the season has not been a propitious one for raising citrus stock, or outside districts have absorbed those trees available.

It is understood from some Sydney nurseries, that they received very heavy damage to young citrus nursery stock and other trees from hail storms.

The general varieties enquired for by growers, are Valencia Late, and Lemons, and both types are practically un procurable.

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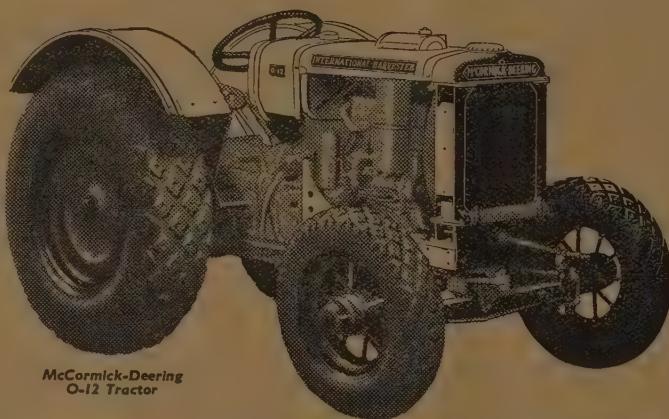
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## Fruitgrowers' Federation of N.S.W.

N.Z. POTATOES ADVOCATED IN EXCHANGE FOR N.S.W.  
MANDARINS — SEASONAL FRUIT ADVERTISING —  
MARKETING AND SPRAYING IMPROVEMENTS NEEDED  
— PALESTINE GRAPEFRUIT DISCUSSED.

THE FIRST MEETING of the board of the Fruitgrowers' Federation after the last annual conference (when it was decided to reduce the number of board members), was held in August when each district was represented by only one member. Mr. J. Heane presided.

Messrs. A. U. Tonking, M.L.A., and F. B. Mackenzie were re-elected Vice-Presidents and Messrs A. S. Brown, K. H. Todd and H. A. Stevenson were elected as executive committee.

### Mandarins for Potatoes.

Reference was made to the comparatively low prices at which Navel Oranges were supplied to N.Z., and it was decided to recommend to the Department of Commerce that a quota of N.Z. Potatoes be admitted in return for the Dominion admitting a quota of N.S.W. coastal Mandarins.

### Advertising Fruit.

The proposal to advertise the health value of fruit in conjunction with other organisations handling food-stuffs was fully discussed, and £200 was allocated for joint advertising. A publicity committee comprising Messrs. Stevenson, P. W. James, A. S. Brown, and F. B. Mackenzie was elected to formulate ways and means of conducting regular advertising of all fruits in season.

Complimentary references were made to the increased vigilance dis-

played by the police in checking and punishing stealers of fruit, but in view of the depredations in this respect, it was decided to request the Minister of Justice to impress upon magistrates the considerable losses sustained by growers.

It was decided to forward a resolution to the Department of Agriculture asking it to compel agents to render a statement to consigning growers each week, showing the amount of fruit on hand, together with the amount sold and the prices realised.

Resolutions were discussed regarding the failure of lime-sulphur for the control of freckle in Peaches and in reference to the inclusion of white oil in sprays, and these will be forwarded to the department for attention.

It was reported that representatives of two Palestine firms were at present seeking orders for the supply of Grapefruit and Oranges, to be delivered between December and March. The respective fruits would be packed in 80 lb. crates and would cost from 22/- to 28/- landed in Sydney and carried as deck cargo. It was considered by board members that such importations were not necessary, but when it was explained that a duty of 1d. a lb. already existed upon Palestine fruit it was decided to take no further action for the present.

## Fruit Juice Industry

### Plans for Factory in N.S.W.

### Over 1,000 Tons of Fruit Needed.

A witness before the Fruit Industry Commission in Sydney gave details of a proposal to establish a fruit-juice industry on a large scale, and gave some particulars that will be of interest to fruit-growers all over Australia.

Mr. L. Messey, of Sydney, consulting engineer, and a member of the Institute of Structural Engineers, London, told the Commission (Mr. McCulloch, S.M.) that the manufacture in Australia of juice from fruit for sale in bottles would increase the value of fruit sixfold.

Mr. Messey said it was proposed to build a factory in N.S.W. for the production of fruit juice for drinking.

In recent years the manufacture of non-alcoholic fruit juices had become a flourishing industry in Europe, where it was competing with remarkable success against alcoholic drinks.

The vogue for fruit-juice beverages, however, had been relatively restricted in Australia. The proposed plant in N.S.W. would be capable of manufacturing and storing 100,000 gallons of juice in a season and eventually of manufacturing 150,000 gallons of juice a year. Between 1,000 and 1,200 tons of fruit would be used in a year. Fruit juice could be exported to the islands and the East.

### N.S.W. BANANA BOARD.

The following have been elected as producers' representatives on the newly constituted Banana Marketing Board in New South Wales:—Electoral District No. 1, Messrs. H. A. Stevenson and T. Cranney; Electoral District No. 2, Mr. E. L. Steel; Electoral District No. 3, Mr. T. M. Ronan; Electoral District No. 4, Mr. J. J. Murphy.

## N.S.W. Crop Prospects

### Budding on Pome and Stone Fruits Generally Good.

The N.S.W. Department of Agriculture reports that the budding of pome fruit trees on the Northern Tablelands are promising satisfactorily.

**Batlow.**—The position with stone fruits is generally good at Batlow. Granny Smith, Jonathan and Delicious are showing heavy budding; other varieties good. With Pears the budding of Packham's is variable, ranging from medium to very good. The showing is heavy of Winter Cole and mainly satisfactory on Williams. The prospects for Florence and St. Margaret Cherries are pleasing.

**Young.**—At Young the sub-soil received a good soaking. Prospects are bright; pome fruit buds developing fairly well, but indications point to Apples being patchy, Pears variable. Packham's suggest crop will be moderate to good, Williams medium to very light, other varieties light. Bud development of Cherries fairly satisfactory; St. Margaret, Burgdorffs, Eagle and Lyons appearing best.

**In the Goulburn district** budding of Apples and Pears is generally good. **Pineapples:** Some splendid fruit is showing at Banora Point and Terranora in the Tweed River District. Supplies are slowly increasing from Murwillumbah, Lismore and Woodburn.

## GOOD FRUIT CROPS FORECAST.

The latest report from the Victorian Department of Agriculture states in all districts except the north-east (Wangaratta, Stanley), good Apple crops are indicated.

Pear and stone fruit buds are looking well in all districts. Canning Peach and Apricot buds in the Goulburn Valley are satisfactory.

# CITRUS NEWS AND NOTES

## Citrus Fertiliser Experiment

### Interest in Field Day at Merbein, Victoria

A LARGE NUMBER of growers assembled on July 20, to inspect the trees in the citrus fertiliser experiment on the grove of Capt. D. B. Halhed, and to hear a lecture by Mr. J. L. Provan, B.A.Sc., Senior Horticultural Instructor, on the experiment and the practice of citrus fertilisation. Mr. J. M. Ward, Superintendent of Horticulture, Department of Agriculture, and other Departmental Officers were present.

In outlining the investigation, Mr. Provan said that it was commenced in 1935 with a uniformity trial. This was essential before any experiment could be planned on scientific lines. A uniformity trial consists of a record of the yield from each tree being obtained, and then this is statistically examined and the plots are laid out in accordance with the results. In this instance, yield records were obtained from some five or six acres of Washington Navel Orange trees.

This experiment consists of five treatments—no manure, nitrogen, nitrogen plus phosphoric acid, nitrogen plus potash, and nitrogen plus phosphoric acid plus potash. Each treatment is replicated five times, and each plot consists of five trees with suitable guard rows. The layout is a randomized latin square. The trees were 23 years old when the experiment commenced, and are propagated on rough Lemon rootstock. They are planted on a skewed square system, 24in. x 24in.

#### Supplying Nitrogen.

At the outset of the experiment it was decided that the nitrogen requirements of these trees could be satisfied by an application of 8 lbs. of sulphate of ammonia in the Spring. Previous observations had definitely indicated the importance of nitrogenous fertilisers in citrus culture in this district, and therefore it was included in four of the five treatments, i.e., the trees in four plots in every five received 8 lbs. of sulphate of ammonia per tree, per annum. Phosphoric acid was applied as superphosphate at the rate of 8 lbs. per tree, and sulphate of potash 4 lbs. per tree supplied the potash to the respective plot trees.

Mr. Provan showed the growers a plan of the layout of the grove and pointed out that each plot tree was marked by a white band of paint around the trunk, and carried a number also painted on the trunk.

#### Soil Types.

Referring to the soil in which the grove is planted, Mr. Provan indicated that two soil types would be noticed, one was the Murray sand on the higher portion of the grove, and the other, Barmera sandy loam on the lower portion. It was interesting to notice that the trees on the former soil type were much superior to those on the latter. This Barmera sandy loam was responsible for a large proportion of the decline in citrus trees in this district, and on this particular grove drainage and salt troubles had been experienced. The two soil types were described in detail and the descriptions will appear together with many other types in the report of the recent soil survey of the district to be published in the near future.

The Murray sand type is generally of low fertility with a pH of 7.5 to 8.0. The natural contents of phosphate and nitrogen are low, and considering the lightness of the soil, potassium is high. The Barmera sandy loam soils are generally a little more fertile than the Murray sand types.

The past fertiliser practices on this particular grove have resulted in a fairly marked improvement in soil fertility, particularly in regard to phosphoric acid content. When first developed, this land carried a Peach orchard, and for a number of years it received heavy superphosphate applications, which, together with the regular annual application of this fertiliser for the establishment of cover crops in the present citrus grove, has built up the soil phosphates.

#### Manures Not Required.

Potash, lime and magnesia are all in abundant amounts in these soil types, and the use of lime is regarded as a wasteful practice.

If a soil amendment is required, gypsum would be more suitable than agricultural lime.

In addition to the total potash content of these soils being high, the availability of this mineral is also very good, and it is extremely doubtful whether growers can apply this fertiliser economically to their groves. The present cultural practices such as irrigation, cultivation and green manuring assist in rendering potash available.

The application of fertilisers to a soil is made for two chief reasons, first to increase the fertility of a poor soil, and secondly, to maintain the fertility of a good one. Occasionally, a one-element fertiliser like sulphate of ammonia, to provide nitrogen, is applied to build up a deficiency of this element when the remaining plant foods are abundant. Obviously, it is easier to show results from fertiliser applications to a poor soil than it is to obtain them by applications to a fertile one. This point will be discussed later when dealing with the results from this experiment.

#### Fertiliser Experiments.

The first experimental fertiliser application on these plots was made early in August, 1936, and the treatments have been repeated each year since. The quantity of fertiliser for each tree was weighed separately and broadcast by hand and ploughed under. Guard trees received a half or a quarter application, according to their position in relation to the plot trees.

In May and early June, each season the crop has been harvested under supervision, and the fruit from each plot tree has been weighed. The results so far have shown that the four fertiliser treatments have resulted in a significantly greater yield being obtained over the no manure plots. There is no significant difference between the yields from plots receiving sulphate of ammonia alone, sulphate of ammonia and super, sulphate of ammonia and potash or sulphate of ammonia plus super. plus potash. Reasons for this will be advanced later.

This season (1938) 25 samples of 16 Oranges each, i.e., one sample from each plot was analysed by the chemist, but the results indicate that no differences in composition of fruit due to treatments are yet noticeable. The average juice content was 47 per cent., rind 31 per cent., and rag 22 per cent. by weight; the acidity, expressed as ccs soda per 10 ccs juice, was 17.5, and total soluble solids expressed as degrees Brix was 10. Compared with the composition of fruit harvested in late June and July, when it has attained full flavor and sweetness, the acidity is slightly high, and the total soluble solids figure (mostly sugars) is slightly low.

This fruit in May, however, is rather lower in acidity than the majority of fruit of this variety in this district. The probable cause of this lower acidity, enabling earlier marketing of this fruit, will be dealt with later when the phosphoric acid fertiliser is being reviewed.

#### Importance of Nitrogen.

Now let us consider the application of nitrogen to citrus trees. Many workers in other countries have claimed, from time to time, that applications of nitrogenous fertilisers to citrus trees will increase the acidity of the fruit. This was supported by Allwright's experiments in South Africa, but this investigator found that where farmyard manure (Kraal manure) was used in conjunction with nitrogenous fertilisers, this increase in acidity did not occur. Recently, Anderssen has suggested that the increase of acidity in the fruit due to applications of nitrogenous fertilisers is really an indirect effect brought about by low absorption of phosphoric acid. In the case of Allwright's experiment, Anderssen suggests that phosphates were added to the soil by the application of the Kraal manure or this application rendered available phosphates already in the soil. Many years ago, Webber, in America, found that sulphate of ammonia and low potash produced sweet fruit, and with an increase in potash applications, the acidity in the fruit increased.

In deciding what form of nitrogenous fertiliser to apply, the analysis should be studied carefully.

A complete list of the declared analysis of each commercial fertiliser is published in the January number of the "Victorian Journal of Agriculture."

Nitrogen can be applied as the organic form, e.g., blood, castor meal, leather waste, etc., or as the inorganic form, sulphate of ammonia, nitrate of soda or nitrate of lime, etc.

The important fact to bear in mind is to apply equivalent amounts of nitrogen no matter which manure is chosen. Suppose a grower chooses sulphate of ammonia (nitrogen content 20 per cent.), and applies this fertiliser at the rate of 4 lbs. per tree. To apply the same amount of nitrogen per tree he would have to apply 16 lbs. of a blood manure with a nitrogen content of 5 per cent.

Mr. Provan then dealt with the nitrogen deficiency symptoms and also the effects on the tree of excessive nitrogenous fertiliser applications.

#### Effects of Potash.

In other countries experiments with potash had indicated that this element was responsible for high acidity in the fruit and a thick rind. This was supported by Benton and Stokes in New South Wales in experiments on sandy loam soils, and recently by Anderssen in the Transvaal. The re-

sults of the present experiments on this grove have shown no difference in the fruit from the potash manured trees compared with the other plots, but then you will recall that it was previously shown that this soil contains large amounts of potash and an application of 4 lbs. per tree is not likely to influence the quality of the fruit. Indeed, Mr. Alan Cameron applied 11 lbs. of potash per tree, each year for three years, to some of his trees, and could detect no difference compared with trees not receiving these additional amounts.

#### Use of Superphosphate.

A more hopeful outlook, however, is the results which might attend the application of superphosphate. It is true no results have yet been obtained in this experiment, but then you will recollect that a survey of past fertiliser practices revealed that heavy superphosphate applications had been made to this grove. It is considered that regular cover-cropping, and also the occasional use of stable manure on this grove, has rendered appreciable amounts of this superphosphate available, and therefore, the comparatively small applications now being made may not influence the quality of the fruit for some considerable time. In soils deficient in phosphoric acid, however, applications of this fertiliser may have a beneficial effect on the quality of the fruit, particularly where heavy nitrogenous applications are usual. Anderssen, whom I have referred to previously, found that a high phosphoric acid content in the fruit was associated with a thin rind and low acidity. Superphosphates may not cause a marked increase in yield, but there is a hope that it may improve the quality of the fruit. Many growers may have applied heavy applications of super, and apparently failed to show results. The difficulty is that super. is easy to apply to the soil, but difficult for the plant to absorb because it becomes locked up very quickly in our alkaline soils. Repeated applications over a number of years and ploughing under early in the Spring—not later than the end of August, will assist the tree to obtain its phosphate requirements.

Super. can also be mixed with sulphate of ammonia and applied immediately through a manure drill. Remember that maximum availability of super. occurs at the time of application and subsequent changes only tend to depress this availability.

#### Effect of Excessive Super.

American experiments have shown that excessive super. applications sometimes cause mottle leaf to develop, probably due to upsetting the nutritional balance. Recently, West, at Griffith, New South Wales, has confirmed this by repeated applications of super. at the rate of 12½ lbs. per tree. Mr. Provan then briefly outlined the modifications which were to be made in the fertiliser experiment on this grove. The no manure trees had declined so markedly that it had been decided to discontinue these treatments—or lack of treatment—and apply nitrogen in order to re-invigorate the trees. Several questions were then answered by the speaker, and an inspection of the plots was made.

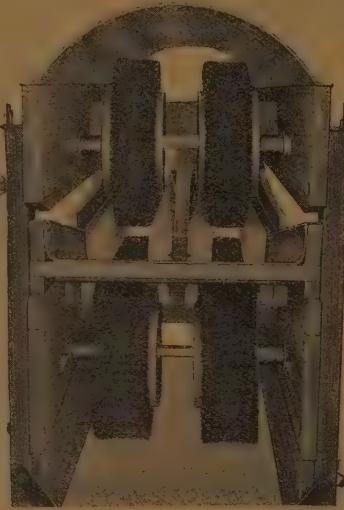
The plots were pointed out, and the treatment each had received was announced. Growers were particularly interested in the symptoms of nitrogen deficiency as exhibited by the trees in the no-manure plots. Even the half of the guard trees facing the no manure trees exhibited symptoms of the same deficiency. The leaves of the trees receiving no manure were small, pale in color with yellow veining, and growth was decidedly reduced, and the amount of dead twiggy wood on each tree was conspicuous.

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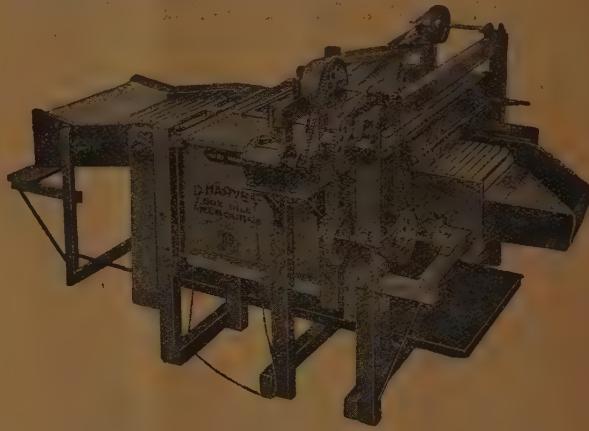
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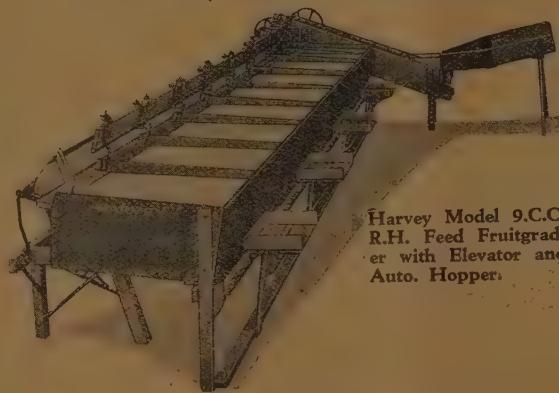
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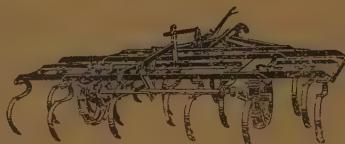
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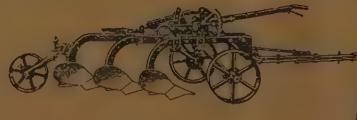
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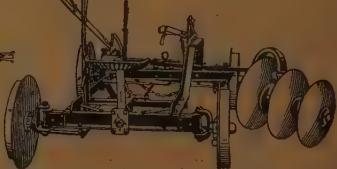
"HARVEY" TRACTOR POWER LIFT SPRING AND RIGID TYNE CULTIVATOR: Cultivates right up to the butts of the trees or vines while the Tractor is driven right out in the middle of the row. Proved to be an excellent machine for deeply cultivating heavy irrigation land.



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# Citrus Field Day

## Rootstock Experiment at Irymple, Victoria

UNDER THE AUSPICES of the Mildura Branch of the Victorian Central Citrus Association a field day was held on Messrs. Leng Bros.' citrus grove in Gingquam-avenue, Irymple, on July 20, for the purpose of explaining to district growers the rootstock experiment with Washington Navel and Late Valencia Oranges.

Officers of Dept. of Agriculture present were Messrs. J. M. Ward, Superintendent of Horticulture; J. L. Provan, B.Agr.Sc., Senior Horticultural Instructor, and R. Roberts, Orchard Supervisor.

### Root Stock Experiment.

Mr. J. L. Provan, who has been in charge of these investigations since their inception in 1931, explained the objects of the rootstock experiment, which were—

1. The influence of rough Lemon (Citronelle), sweet Orange and sour Orange rootstocks on the yield of Valencia Late and Washington Navel Oranges.

2. The influence of these rootstocks on the quality, composition, maturity, and many other characteristics such as size, out-of-season fruit, tendency to drop, splitting, etc.

3. The influence of these rootstocks on the health and longevity of the trees.

The experiment began in 1931, when seed of the three varieties of rootstocks was collected from selected parent trees of known characteristics. This seed was sown in a bush-house in the Spring of 1931. Germination was excellent and the seedlings remained in the seed-beds until early Spring, 1932, when they were lifted, heavily culled for uniformity, and "rogues," and then planted in a nursery established for this purpose on Mr. Alec Leng's property.

Satisfactory growth was obtained in the nursery stock, the rough Lemon and sour Orange stocks being outstanding.

The trees were budded in September, 1933, by Departmental officers with true-type Washington Navel and Valencia Late buds obtained from previously selected trees in the Mildura district. Mr. Provan, with the late Mr. S. A. Cock, former Citriculturist, had spent several years investigating bud selection problems before these selections were decided upon. All the Washington Navel trees were propagated with buds from a single tree of this variety, and all the Valencia Late trees were also propagated from a single Valencia Late parent tree.

The buds grew well during the Spring, Summer and Autumn of 1933-34, and were ready for planting out in the Spring of 1934.

### Site and Soil Type.

The site for the experimental plots was selected because the soil was regarded as an ideal one for citrus. It

was "high-land" and had not been previously irrigated, and permission had to be obtained from the First Mildura Irrigation Trust, to pump water for irrigation from one of their channels.

The soil is classified as a typical Murray sand, and before planting it was bored to a depth of 12ft., and samples were submitted for analysis to Mr. W. R. Jewell, Agricultural Research Chemist of the Department of Agriculture. Analysis revealed that the surface soil was low in nitrogen and phosphoric acid, which is typical of this soil type and high in lime, potassium and magnesium. A high percentage of coarse sand and fine sand, with a small percentage of silt and clay, are responsible for the lightness of these soils. Organic matter in the surface foot was very low.

The area in the two plots, one Washington Navel and the other Valencia Late totals six acres. This area is situated in the main grove of 20 acres—the Washington Navel plot of approximately three acres having a northerly aspect, and the Valencia Late plot on the other side of the ridge with a southerly aspect.

In the Washington Navel block there are 15 plots, each plot consisting of two trees on each of the three rootstocks, randomized, with double guard rows of Valencia Late Orange trees. The trees are planted on the triangular system, 22ft. apart each way. The layout of the Valencia plot is similar, but Washington Navel trees are used in the guard rows.

### All Trees Established.

When the trees were lifted from the nursery they were heavily culled for uniformity and planted in their permanent position in the Spring of 1934. An interesting point in connection with the planting and subsequent care of the trees is that not one plot tree has had to be replaced. Subsequent cultural operations were conscientiously carried out by Mr. Alec Leng and latterly by his brother, Mr. Owen Leng, under the direction of Mr. Provan. In 1934, no fertiliser was applied; in the Spring of 1935, each tree received  $\frac{1}{2}$  lb. of dried blood manure (12 per cent. nitrogen) in one application. This fertiliser application was increased to 1 lb. in  $2\frac{1}{2}$  lb. applications in 1936, and in Spring 1937, one application of  $1\frac{1}{2}$  lbs. was given.

Cover-crops, with superphosphate, have been ploughed in annually. In this soil type, satisfactory cover-crop growth is impossible without liberal superphosphate applications.

Growers stated that the trees had made remarkably good growth, and were a good size for their age, nearly four years, and healthy.

### Measurement Checks.

When the trees were planted, measurements were made of the trunk diameters of each tree and each Winter since similar records have been ob-

tained as well as measurements of the height and width of top growth. Uniform treatment has been given to each tree throughout its life.

At planting time the Washington Navel and Valencia Late trees on rough Lemon rootstock were larger than those on either the sweet or sour Orange rootstock, and the latter was slightly larger than the sweet Orange. During the past four years, however, the trees on the sweet Orange rootstock have been gradually overtaking those on the sour and rough Lemon rootstock and their relative position, as determined by trunk circumference (as the trees became larger this measurement superseded trunk diameter) are now the Washington Navel trees on sweet Orange rootstock and are significantly greater than those on rough Lemon, which, in turn are greater than those on sour Orange. The Valencia Late trees on sweet Orange and rough Lemon are not significantly different, but both are larger than trees of this variety on sour Orange.

Of course, this is only a stage in the development of these trees, and, therefore, the present data can only be regarded as a progress report.

Mr. Provan indicated to growers the difference in the type of growth of the same variety on each of the three rootstocks. The sweet and sour Orange rootstocks imparted a more bushy and pendulous habit of growth to the scion in the case of the Washington Navel, while this variety on rough Lemon was tall and upright in appearance.

### The First Crop.

During the first three years, very little fruit set on the trees, and each year all fruit was removed. In 1937-38 season following a profuse blossoming, a considerable Washington Navel crop set, and this was allowed to remain on the trees. The average set was about a loose bushel case per

tree. Final figures for weight of crops, and number in each count are not yet available.

Samples of fruit from trees on each rootstock were submitted to the chemist for analysis. These results have not yet been statistically analysed, but it is unlikely that they will be significantly different from the other. The juice content was 50 per cent., which can be considered as very good; the rind was somewhat thick and heavy; rags and acidity were good, and the total soluble solids (degrees Brix) was low. These characteristics are typical of fruit from young, vigorously growing trees.

After answering a few questions, Mr. Provan conducted the growers present over the plots and indicated the trees on the various rootstocks and also the system of irrigation employed to ensure as uniform watering as possible on the two blocks.

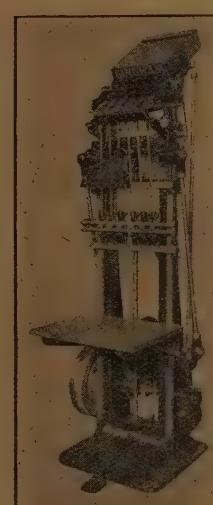
Test wells have been placed at the top and bottom of the Washington Navel block to ascertain the depth of the water-table and to examine the movement of water following irrigations.

This rootstock experiment is now in its eighth year and should prove a valuable guide to future plantings on this soil type, in districts along the Murray River.

### CITRUS AT WAIKERIE.

The citrus crop at Waikerie (Sth. Aust.) this year is likely to be a record one, stated Mr. Grant Kerr, the well-known citrus grower in that area. The fruit is of splendid quality and marketable size. The export of Waikerie Oranges would be heavier than ever before.

Crops in the Kingston and Renmark areas are also good, and the output from this section of the river will be unusually heavy and of fine quality.



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# DRIED FRUITS NEWS AND NOTES

## SALES OF DRIED FRUIT.

### Steady Demand in All Markets.

THE CROP of dried vine fruits last season was easily a record, and consequently a big problem confronted the selling organisation of the industry in endeavouring to dispose of the extra tonnage on top of the usual output without affecting the market.

In the first three months of the selling season good progress has been made. Although there have been no spectacular disposals of large quantities, quittances have been on a steady level each week, and in consequence the stocks are being reduced at a satisfactory rate. Prices are being maintained and the fruit is being sold—which is all that could be expected.

In view of the statistical position, higher prices could not be anticipated. The demand for Lexias is brisk, and prices are on a similar level to those ruling since the war in Spain began. Until that trouble is settled, and probably for a long time after, this demand is likely to continue. There is the further possibility that Australian Lexias, having obtained a footing in the markets, will hold their place at a reasonable price when the Spanish vineyards are again in production for export.

The Sultana position remains much the same as last year, so far as prices are concerned. In some quarters it was hoped that the exceptionally high quality of this year's pack would ensure better prices all round, but, as was pointed out in these columns last June, there is only a strictly limited market for top-quality fruit at premium prices, and the bulk of the fruit cannot command high figures. This contention appears likely to be borne out by results.

Currents still continue to be a poor proposition for the grower; regardless

of quality, prices are still low, and very heavy crops would be required to make them a payable line.

If, as seems likely, there is not a large carry-over of this year's fruit, and the bulk of it is sold without any serious slump in prices, the industry will have good reason to appreciate its system of organised marketing. Without organisation of the most effective nature it would be impossible to market the ordinary tonnage at profitable rates in any year, and a crop larger than usual would simply create chaos in the industry and involve the ruination instead of the enrichment of the growers.

## DRIED FRUITS ACT.

### Hillston Emporium Fined.

At Hillston (N.S.W.) Police Court on July 6, before Mr. R. Donaldson, P.M., Nall Jackson & Coy. Pty. Ltd., general storekeepers, Hillston, were proceeded against by the N.S.W. Dried Fruits Board for purchase of dried Apricots and Sultanas not packed and graded in accordance with the regulations under the Dried Fruits Act. A plea of guilty was entered.

Appearing for the Board, Inspector C. N. Hall stated that he found two jute bags of dried Apricots at the company's Hillston store, and one petrol case of dried Sultanas at the Goolgowi shop of the company. He was informed that the fruit had been purchased from a hawker named J. Copplestone, a resident of Leeton. He was not satisfied that the true identity of the seller had been disclosed. The Sultanas contained objectionable foreign matter, which had apparently been present when they were purchased from the hawker.

The Inspector expressed the opinion that the Sultanas and Apricots had not been graded and packed at a packing house registered with the Board

and in accordance with the regulations under the Dried Fruits Act.

Mr. J. G. Rose stated on behalf of the company that the hawker had represented he was in financial difficulty, and the fruit had been purchased as a gesture of sympathy. Dried fruits not correctly graded and packed had not been purchased previously by his company.

A fine of £10, with 8/- costs, was imposed.

## SOUTH AUSTRALIAN DRIED FRUITS BOARD.

A MEETING of the Sth. Aust. Dried Fruits Board was held on August 1, 1938, when all the members were present.

Secretary reported that the Ninth Report of the Board for the year 1937/8 was laid on the table of the House on July 19, 1938.

A number of applications for transfers of registration of packing houses were dealt with.

In connection with amending legislation, the secretary submitted a copy of memorandum to the Parliamentary Draftsman following conferences with him and arising out of the recommendations of the Australian Agricultural Council (Canberra, May, 1938).

Particulars of production for the season 1938 in the Coonawarra Area were submitted.

Summary of reports of Investigation Officers during July, 1938, were submitted, together with special reports of sale of drawback fruit, enquiries among retail storekeepers on selling prices, and enquiries at Broken Hill.

The annual grant of the Joint Publicity Committee for the year 1938/9 was approved, and minor advertising contracts entered into with the "Storekeepers' Journal" were approved.

Figures showing the progressive pack to 23/7/38 were noted, and the remainder of the session was taken up with financial and routine business.

Married man, age 40 years, desires position as  
**WORKING MANAGER of ORCHARD**  
Life experience and expert knowledge of all branches of the industry.  
Excellent References.

"CLEO," "Fruit World."

## AUSTRALIAN DRIED FRUITS.

### Sales in Great Britain.

The Commonwealth Dried Fruits Export Control Board report continuation of the steady demand for Australian dried fruits in the British markets. For the week ending August 18 sales of 1,526 tons were recorded with the London Agency of the Board, including 971 tons of Sultanas at an average of £38/11/5; 455 tons of Currents at £26/5/6, and 100 tons of Lexias at £50/2/6 per ton. Sales in Great Britain to date amount of 20,925 tons; the balance unsold is 25,271 tons, including approximately 7,000 tons in transit.

## DRIED FRUIT SALES.

Registration of sales with the London Agency of the Commonwealth Dried Fruits Export Control Board show that during the week ended August 25 heavy realisations continue to be effected in Great Britain. Buyers took 985 tons, including 82 tons of Lexias at £50/15/8, 647 tons of Sultanas at £39/0/8, and 256 tons of Currents at £27/8/4, the prices mentioned being the averages of sales for the week. Shipments to Great Britain now total 47,011 tons, of which approximately 5,500 tons are afloat and sales to date are 21,910 tons.



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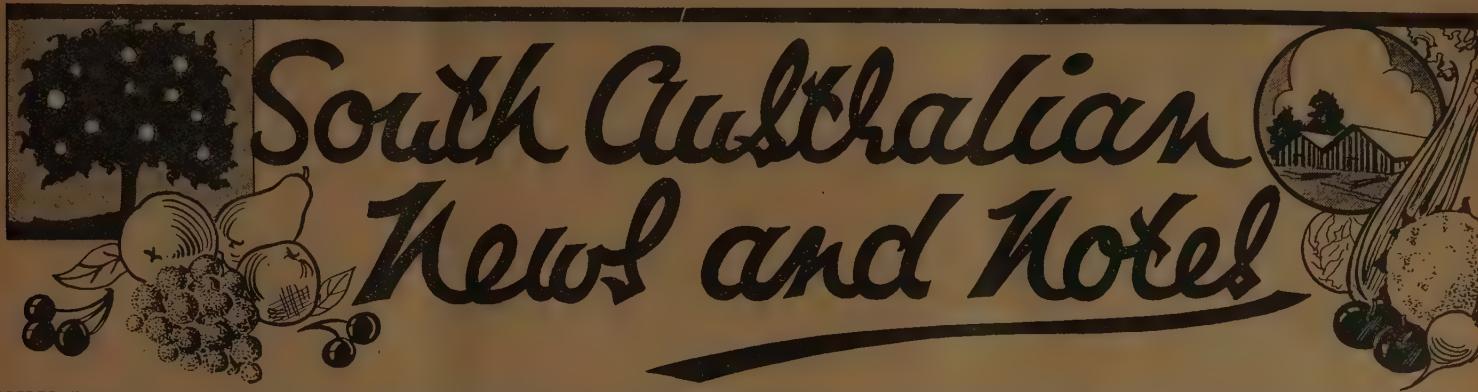
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# South Australian News and Notes

INCLUDING OFFICIAL NOTES AND REPORTS FROM THE SOUTH AUSTRALIAN FRUITGROWERS' & MARKET GARDENERS' ASSOCIATION.

## The South Australian Fruitgrowers' & Market Gardeners' Association Incorp.

Minutes of Executive Meeting held on August 26th

Present: Messrs. W. J. Bishop, G. H. Schultz, R. Hannaford, G. Clifton, A. E. Brealey, R. B. Pritchard, E. L. Giles, G. Jennings, C. H. Ragless, C. W. Giles, J. Turner, J. G. Potts, W. H. Ind, J. B. Randell, R. Hunter, L. J. Wicks, A. G. Strickland, and Secretary

Apologies: Hon. T. Playford, N. T. Hobbs, H. B. Robson, H. N. Wicks, and R. Crammond.

The meeting was presided over by the President, Mr. W. J. Bishop, of Basket Range.

The minutes were taken as read and confirmed.

Correspondence: (1) Dept. of Agriculture re Fruit and Vegetable Grading Regulation. (2) Commissioner of Crown Lands re use of manure bags. (3) Secretary Loveday Annual Licensed Blockers, re membership. (4) Banana Marketing Board of N.S.W. (5) Foy & Gibson Pty. Ltd., re annual dinner. (6) Birks Piccadilly Restaurant, re annual dinner. (7) Ellis Cafe's Ltd., re annual dinner.

Mr. J. Turner moved; Mr. J. B. Randell seconded, "That correspondence as read be received and dealt with." Carried.

Fruit and Vegetable Grading Regulations: Mr. W. H. Ind moved, supported by Mr. J. Turner, "That this Association supports the suggestion conditionally that the suggested regulations apply to inward produce." Carried.

Loveday Annual Licensed Blockers: Mr. G. Marks, Secretary of the Loveday Annual Licensed Blockers, Barmera, was admitted to the meeting, and placed before the meeting a suggestion whereby this Association could assist the Pea growers from Barmera.

Mr. C. W. Giles moved "That a committee be appointed to go into the matter." Seconded Mr. C. Ragless. Carried.

Mr. J. B. Randell moved "That the committee consist of Messrs. G. Strange, A. Day, J. G. Potts, N. T. Hobbs, R. G. Bartram, and R. Cobble-dick." Seconded Mr. C. W. Giles. Carried.

Life Members: Mr. E. Giles moved, supported by Mr. G. H. Schultz, "That it be a recommendation to the annual meeting that Mr. G. Jennings be made a life member of the Executive." Carried.

Annual Meeting: The Secretary reported that the sub-committee appointed to deal with the annual meeting arrangements had met and recommended the following programme:

Executive meeting at 10.30 a.m. sharp.

Annual meeting at 11 a.m. to be opened by Mr. A. G. Strickland, Chief Horticulturist.

Conference at 2.30 p.m. to be opened by Hon. A. P. Blesing, Minister of Agriculture.

Dinner at 6.30 in the evening to be followed by a talkie picture programme by Mr. H. N. Wicks.

Mr. G. Schultz moved, supported by Mr. R. B. Pritchard, "That the recommendation of the committee be accepted." Carried.

Tickets to Dinner and Show: Mr. Ind moved "That tickets be priced at 4/- each." Seconded Mr. J. Turner. Carried.

Place: The Secretary submitted quotations from various restaurants. Mr. G. H. Schultz moved "That the place be left to the committee to decide upon." Seconded Mr. R. B. Pritchard. Carried.

Agenda for Conference: Mr. J. B. Randell moved "That the Hon. A. P. Blesing, Minister of Agriculture, be invited to open the conference." Seconded Mr. J. Turner. Carried.

Mr. R. B. Pritchard moved "That Mr. A. G. Strickland be invited to open the annual meeting." Seconded Mr. A. E. Brealey. Carried.

Mr. J. Turner moved "That Dr. Callaghan be invited to address the conference." Seconded Mr. C. W. Giles. Carried.

Mr. R. Hunter gave notice that he would bring forward for discussion at the conference the subject of "The Government be asked to create a chair of Distribution at the University."

Sectional and Branch Reports. Reports were received from Mr. J. G. Potts, Tomato Section, and C. Ragless, Marion Branch.

The Chairman reported on the conference with the Executive of S.A. Fruit Marketing Association of August 19, which has been adjourned until such time as the Federal Bill had been passed.

Mr. G. Jennings read an extract from the Press concerning gas storage in South Africa, and it was resolved that Mr. Strickland be asked to enquire into the matter.

Water Down the Torrens: Messrs. J. B. Randell and C. W. Giles moved "That Messrs. G. Jennings, J. G. Potts and G. J. Strange be appointed as a water committee to watch growers' interest along the lower reaches of the Torrens." Carried.

Mr. R. B. Pritchard moved "That Messrs. J. B. Randell and W. H. Ind represent the Association to meet two representatives of the Society to consider the allocation of duties and salaries of the two bodies." Seconded Mr. C. W. Giles. Carried.

Finance: The Secretary submitted the financial statement to date, together with accounts for payment.

Mr. W. Ind moved "That the statement be received and accounts passed for payment." Seconded Mr. J. B. Randell. Carried.

### SEPTEMBER EXECUTIVE MEETING.

The Executive will meet on Friday, September 30, at 10.30 a.m. sharp so as to enable the necessary business to be transacted before the annual meeting at 11 a.m.

W. J. BISHOP (President).  
A. STUART (Secretary).

### MARKET NOTES.

The Adelaide markets during August were brisk, owing to the fact that most vegetables were in short supply. Prices firmed for most bunch lines, and Cauliflowers remained at a very satisfactory price.

Potatoes, owing to the acute shortage, firmed considerably during the early part of the month, but towards the latter part eased slightly.

Fruit sales were quite early, especially with citrus, but towards the end of the month Apple prices generally rose 1/- per case.

Glass house Tomatoes made their appearance during the month, and sold readily at a satisfactory price, but weather conditions later had an easing effect on the market.

The Celery market still continues buoyant. The weather during the month was seasonable, with steady rains principally during the latter part of the month.

The Fruitgrowers' and Market Gardeners' Society Ltd. report a satisfactory year's trading to June 30 last, and the annual meeting will be held in the Board Room on Friday, September 3, at 10 a.m.

Mr. C. W. McRostie, Melbourne Market Representative of the S.A. Fruitgrowers' and Market Gardeners' Association, visited Adelaide during August. He addressed the committees of the Tomato and Celery Sections, and also the annual general meeting of the Tomato Section.

### INSURANCE

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A. STUART, Secretary.  
F. & M.G. Society Ltd.

### ANNUAL GENERAL MEETING.

The annual general meeting of the S.A. Fruitgrowers' and Market Gardeners' Association Incorp. will be held in the Board Room, 288a Rundle-street, Adelaide, on Friday, September 30, 1938, at 11 a.m.

The meeting will be opened by Mr. A. G. Strickland, Chief Horticulturist of the South Australian Department of Agriculture.

Agenda:  
Confirmation of minutes.  
President's report.

Adoption of Financial Statement.

Elect of Executive Committee.

Any other business that may be lawfully transacted.

All members are especially invited to attend.

W. J. BISHOP (President).  
A. STUART (Secretary).

### ANNUAL CONFERENCE.

The annual conference will be held in the Board Room on Friday, September 30, 1938, at 2.30 p.m.

The conference will be opened by Hon. A. P. Blesing, Minister of Agriculture.

Dr. Callaghan, of Roseworthy College, who has just returned from South Africa, has been invited to address the meeting.

Matters relative to welfare of the industry will be introduced and discussed.

Members are urged to attend the conference and thus avail themselves of the opportunity of advising or being advised of matters appertaining to the industry.

W. J. BISHOP (President).  
A. STUART (Secretary).

The annual conference will be followed by a dinner at the Arcadia Cafe, King William-street, at 6.30 p.m.

Many new features have been introduced to make this dinner the most entertaining yet. An interesting toast list will be submitted and will be followed by a talkie picture programme by Mr. H. N. Wicks, Vice-President of the Association.

Tickets covering dinner and picture show priced at 4/- each can be obtained from the Secretary or from the Arrangement Committee (Messrs. W. J. Bishop, A. O. Petersen, M. J. Vickers, and H. N. Wicks). Members are especially invited to be present at this function, both for the educational and entertainment points of view.

# Gummosis (Dieback) Disease in South Australian Apricot Trees

## Progress Report on Investigations

(By D. B. Adam, B.Agr.Sc., Plant Pathologist, Waite Agricultural Research Inst., in the S.A. "Journal of Agriculture.")

THE disease described below, is undoubtedly one of many years' standing in this State. It is considered to have become more prevalent in recent years and more serious as an economic factor in Apricot production. Without the information obtainable from a detailed survey of the Apricot growing areas it is difficult assessing the losses caused by this disease, though they must be considerable.

The disease has attracted most attention in the Barossa district, but observations in other non-irrigated Apricot areas of the central part of the State suggest that it is equally as common and severe there as in the Barossa district.

In individual orchards the extent of the spread of the disease is related to the age of the trees. A careful study of the trees in a twenty years old orchard may reveal that half the trees show signs of the disease while in some cases, the proportion may be much higher. The rate of development of the disease is generally slow, but by the time the trees are thirty, the loss by the death of individual branches, or of whole trees is often so great that the maintenance of the block becomes uneconomic. "Gummosis" is undoubtedly an important factor in determining the economic life of commercial apricot orchards in the non-irrigated parts of South Australia.

The feature first attracting attention to this disease is the pressure

of masses of gum on affected limbs. The gum itself is clear and usually amber or light brown in colour. It dries out slowly to a hard brittle mass. On wetting by rain, the mass softens and slowly washes away so that old infections, that had once produced gum freely, may show little gumming.

Although the formation of gum masses on the bark surface is a common feature of this disease, such a production does not always occur. In cases where, for instance, the disease has started at the tip of a leader gumming may not be evident.

At this point it is advisable to say something more about gumming because this symptom is by no means peculiar to the disease about to be described. Gumming in apricots and related stone fruits can be brought about by a great variety of causes. Indeed any agent which injures certain parts of the bark or wood may result in gum formation. Thus, pruning itself, or a deep cut in the bark often leads to a small amount of localised gumming. Injury, by a bark borer insect like Maroga, by the shot hole fungus (*Coryneum beijerinckii*) or through a waterlogged soil at certain stages in the growth of a tree may all induce gumming. In such cases, in addition to gum oozing from the cut ends of branches and around buds, it may accumulate in pockets under the bark or in the conducting vessels of the wood. This last type reveals itself by the occurrence

of dark-brown streaks in the wood; especially the central portions of the twigs. In the matter of gum formation the South Australian "gummosis" disease can usually be distinguished by a more copious exudate than is characteristic of most other types of gumming.

There are, however, other distinctive symptoms which will now be described.

Where, as is often the case, the disease is first seen at some intermediate point on a branch it is usually associated with a pruning wound. If such a pruning wound has actually served as the point of infection the following features may be seen. The bark tissue around the cut, but particularly below it, is dead and shrunk and when cut into is found to be dry and dark-brown. At the edge of the dead tissue a longitudinal split often develops separating the healthy and diseased parts. The splitting is brought about by a development of callus in the still uninvaded healthy tissue and gives the surface of the bark a rolled appearance. Copious gum formation generally occurs at this point. The effect of the disease on Apricot wood is also characteristic. It can be seen best if the wood is split horizontally. Infected wood is discolored a light-brown and traversing it fairly conspicuously there are slightly darker colored fleck-like horizontal bands. These are the gum-filled cells of the medullary rays, which are present but less conspicuous in normal wood.

The wood discoloration may extend unevenly up and down the branch generally advancing farthest immediately below the point of infection in the youngest wood. Later on the diseased wood acquires a slightly darker-brown color and becomes very dry and brittle. In an advanced stage the branch near its point of infection may break off like a carrot.

In advanced infections the death of an affected limb comes about with great suddenness. An apparently healthy, though in reality badly affected, branch may wilt completely in a week. This wilting may occur at any time during the growing season but occurs most commonly when the tree is growing vigorously and the fruit is half formed. The wilting, which usually occurs in one branch at a time, occurs with such suddenness that growers sometimes think that the tree has been struck by lightning. Where such a sudden collapse has occurred it will be noticed that practically the whole cross section of the wood at some point on the branch has been altered in the way already described. The time which elapses after infection and before withering occurs depends among other things on the diameter of the affected branch. If infection occurs near the top of the tree in 2-3 year old wood the branch may wither 15-18 months after infection. On the other hand, where infection occurs near the butt of the tree, many years may pass before the sudden collapse occurs.

The time required to kill a branch after infection is related to the rate at which the cross section of the wood is invaded by the fungus causing the disease. However, the spread of the fungus horizontally is slow compared to that occurring vertically. In a large branch the fungus may grow several feet up and down the branch before it spreads the 4ft.-6ft. across the wood necessary to bring about wilting. In the infect-

ed regions of the branch remote from the point of infection, collapse of the bark in the way which occurs at the latter point does not occur, although if the bark is cut into it may show a brown discolouration and there may be an occasional large drop of gum. Very often the lowest point of penetration of the fungus in the wood is not indicated by any external visible symptom, a matter of importance which will be referred to later when the surgical treatment of the disease is being considered.

The disease is most prevalent on Apricot trees, though a few cases of a similar disease have been observed on Peaches and Plums. It has not been observed on Apples or Pears. Inoculation experiments using the fungus obtained from diseased Apricot trees and designed to test which the deciduous orchard trees are susceptible to this disease are in progress.

### Cause of the Disease

The disease is caused by a fungus which can be isolated from the diseased bark or even more easily, from infected wood. The fungus thus isolated was tentatively assigned by Mr. Samuel, formerly Plant Pathologist at the Waite Institute, to the form genus *Cytosporina*. So far as it has been elucidated, the life history of this fungus is quite simple. After a period of vegetative growth in the wood and bark of an infected branch, masses of fungal tissue thicken to develop small flattened fruiting bodies. Most usually, they form just beneath the periderm or outer bark, though they will also form on the wood where a dead branch has been cut off. When dry, these tiny fruiting bodies are practically indistinguishable. When wetted, as for example by heavy rain, they become more conspicuous because of the light cream-colored spore-masses which emerge and rest on their surfaces. The spore-masses themselves are far from conspicuous and can only be seen if carefully searched for. The spore-mass, depending on how much wetted the branch has been, may emerge as a small round glistening sticky mass or as a fine thin tendril protruding a short distance from the surface on the branch. These inconspicuous masses of spores as we shall see from evidence given later, undoubtedly play a part in the spread of the disease.

### Inoculation Experiments

Since the time, the investigation started in 1934, over 450 inoculations of Apricot trees (including controls) have been made. Such extensive experiments have only been possible because of the generosity of the Department of Agriculture in making available the necessary Apricot trees at the old Hackney Orchard and at the Government Experimental Orchard at Blackwood. In this account a detailed description of these experiments cannot be given because many of the inoculations are still under observation and information about them is incomplete. However, positive results concerning certain aspects of the problem have been secured so consistently that they warrant description here.

The first matter to consider is the question whether the fungus already mentioned as being readily isolable from diseased wood is in fact the cause of its condition. Results proving that this disease is induced by infection with a fungus have been secured in over 50 cases. The cultures of fungi used in these experiments were isolated from different sources and applied either in the vegetative form as mycelium or as spore suspensions. It is only necessary to describe one such experiment in detail and it will serve to show the general method adopted.

(To be continued.)

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# BLOSSOM TOUR BEGINS

VISITORS SEE MARION (S.A.) GROVES

## Greeted with Flowers

WHEN they stepped from the Overland Express on August 7, to begin a seven-day Almond blossom tour, 25 visitors from Victoria were greeted with flowers. As each tourist alighted from the train he was presented with a spray of blossom with a label bearing the words "Welcome to Adelaide" and the State crest. In the afternoon they were driven to Marion, where they strolled through sunlit Almond groves in the full beauty of their pink and white blooms.

At the station the party was greeted by the director of the South Australian Government Tourist Bureau (Mr. Victor H. Ryan) and Misses Marie Duval, Betty Childs, and Mona Dollman, of the Tourist Bureau staff. Each girl carried a tray of blossom sprays sent in for the occasion by Mr. Charles Morgan of Toorak.

Driven to Marion in a South Australian Railways bus, the tourists were met by the chairman of the Marion District Council (Mr. F. H. Trott), the town clerk (Mr. C. W. Bradley), the acting chairman of the Marion branch of the South Australian Fruitgrowers' Association (Mr. H. N. Weston), and Messrs. I. R. Adams, S. Walker, M. Ragless, F. Parsons, S. Edwards, and C. Phelps, growers.

## "Welcome" in Blossoms

On the property of Mr. M. Ragless, the visitors had their first glimpse of the breath-taking loveliness of the Almond plantations, and they were touched to see the word "Welcome" picked out in blossoms bordering the path on which they walked. Afterwards they were taken through Mr. K. L. Rainsford's property in Brighton, to the estate of the late S. A. Parsons, and to Almond groves owned by Messrs. George Weston and F. H. Edwards.

When they reached the Marion district hall the tourists were reluctant to leave their inspection of the Almond groves for the afternoon tea which had been prepared for them, but inside they found that clouds of pink-tinted blooms had been used for decorations.

In a speech of welcome, the chairman of the district council (Mr. Trott) said that growers were always ready to help tourists from other States. The production of Almonds had been doubled during the last year, and if plantings proceeded at their present pace, future tours of the district would have to be spread over many days.

Even those who were not exclusively engaged in Almond production were planting more of the trees each year. Their advantage was three-fold, because they added to the beauty of any property, they afforded welcome shade for stock in Summer, and they were a valuable commercial sideline.

Thousands of cars, he said, came to the district each week-end during blossom time, and next season it was proposed to publish a map of the area. He asked the visitors to tell their friends in Victoria of Marion's beauties.

## S.A. Almond Market

The acting chairman of the Fruitgrowers' Association branch (Mr. Weston) said that Marion was only one little rural district of South Australia, but this week it was clothed in all its best. The men on the land were happy to cultivate and to share with visitors from the cities the God-given beauty of the blossoms.

Too many of the Almonds sold in Australia, he said, had been grown by foreigners. He asked the visitors to show their appreciation of the visit by saying "South Australian" when they bought Almonds.

Mr. Ryan expressed the Government's appreciation of the ready co-operation of Marion councillors and growers in showing the beauties of the State to interstate visitors. South Australia did not claim to be able to display something better than the eastern States, but it could display something different. More than 60 per cent. of the Almonds produced in the Commonwealth came from South Australia.

Members of the Victorian party were delighted with their first impressions of the State's beauties. They were charmed by the floral greeting at the Adelaide station, and many of them admitted that the beauty of the blossom groves far exceeded their expectations. Their cameras worked overtime.

To-day the party will go to Morialta and to Waterfall Gully. Their tour, which will end on Sunday, will include visits to Belair, Mount Lofty, Lobethal, Strathalbyn, Victor Harbor, Port Elliot, Torrens Gorge, and Millbrook Reservoir.

Another party of 20 Victorian tourists arrived in Adelaide from Morgan last yesterday afternoon, after having travelled from Mildura by river steamer. They were also presented with Almond sprays on their arrival.

— "The Advertiser."

## The South Australian Fruit Marketing Association Inc. Executive Committee

Minutes of monthly meeting of members held at Adelaide on August 26, 1938.

Present: Messrs. J. S. Hammat, M. G. Basye, F. B. James, R. G. Hannaford, J. B. Randell, R. Hannaford, F. Rowley, F. F. Redden, C. L. Winser, A. G. Strickland, W. W. Miller, M. Vickers, A. Brealey, H. M. Charlton, J. H. Dunning, J. Clifford, P. R. B. Searcy, L. J. Bishop, and the Secretary.

Apologies: Messrs. H. J. Bishop, D. Norsworthy, H. N. Wicks, G. Quinn, Hon. T. Playford, M.P.R., O. Knappestein, A. R. Willsmore, W. F. E. Smith.

Minutes: Minutes of monthly meeting held July 29, 1938, were taken as read and approved.

Financial statement was submitted by the Secretary and received.

Correspondence: Letter from the Victorian Fruit Marketing Association dated August 5, enclosing copy of letter to the Acting Minister of Commerce, protesting against the Agricultural Council being appointed in the proposed Control Bill to review the operations of the Board at triennial intervals.

The V.F.M.A. considered that this power of review should be vested in the approved State Fruitgrowers' organisations.

It was agreed that this Association support the attitude of the V.F.M.A., provided that each State is equally represented.

A letter was received from the Department of Commerce dated August 4, acknowledging receipt of our letter of July 30, re suggested alteration to Clause 6, of the draft Bill to provide that Australian exporters of Apples and Pears be appointed upon the nomination of the approved exporters' association in each State, instead of on the recommendation of the State Minister of Agriculture.

Letters from the Department of Agriculture dated August 3, enclosing copy of recently gazetted amendment of Fruit and Vegetable Grading Regulations 1937, and advising that additional copies are available if required. August 18, in regard to the suggested alteration under the existing Fruit and Vegetable Grading Regulations to provide that fruit which is marketed outside a radius of 40 miles of the property on which it was produced, and whether or not it is in open packages, must be so marketed in cases clearly marked with particulars as to grower's name, variety, grade, and size or number.

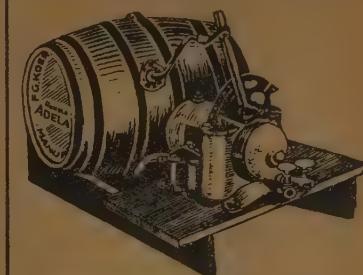
Another letter from the Department of Agriculture dated August 11, enclosing cheque for refund of levy on Apples and Pears for 1938 export season. August 9, enclosing copy of letter from Association of British Manufacturers and Australian Producers Ltd., and advising that the matter would be dealt with at the annual conference.

The Secretary was instructed to reply advising that members approved of the ideals set forth in the letter, and would do everything possible to assist.

## Troubles

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August 2 and 22, advising that the annual conference would be held in Sydney in the week commencing October 10, and asking for items for the agenda.

Forecast of Crop: It was considered somewhat early to make an accurate forecast for the coming season's crop and the matter was deferred to the next meeting, when members were asked to bring as much information as possible to assist the delegates attending the Apple and Pear Council Conference.

Research Sub-Committee: The chairman reported that the Research Sub-Committee a general discussion had taken place on various matters of interest, and in particular to the Apple jassid fly and the best time to apply sprays to get the most efficient results.

AUSTRALIAN INSTITUTE OF REFRIGERATION.

Nineteenth Annual Meeting, September 14.

The 19th annual meeting of the above Institute will be held at Kelvin Hall, Collins-place, Melbourne, on Wednesday, September 14, at 8 p.m.

Among the items appearing on the agenda paper are the election of officers for the ensuing year and the election of a new member.

A paper entitled "The Latest Development in Air-Conditioning" will be delivered by Mr. L. Brumley. Mr. Brumley will use the epidioscope to illustrate units of equipment used in the application of air-conditioning in the factory, warehouse and home.

## SHOWS TO COME.

Royal Melbourne Show—September 22-October 1.  
Red Hill (Vic.)—October 26.

"Your people havn't sent the things I ordered yesterday."

"Dear, dear!! The fact is, madam, my right hand is away with a swollen foot!"

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## Mid-Murray Notes

RESTRICTED PLANTINGS OF WINE GRAPE VARIETIES —  
A SUGGESTED SCHEME FOR STABILISATION — THAT  
FIRST WATERING DATE — SPRAYING AT BUD-BURST  
— COMBATING RED SCALE.

(By Our Correspondent.)

THE vine-growers in the River areas interested in the production of wines and spirit have recently received a circular letter from the Chairman of the Wine Overseas Marketing Board urging them to refrain from further planting of vines for wine-making purposes. As the planting season is now commencing, it is probable that all vinegrowers in other parts of Australia have also received a copy of this letter. The letter comes as a timely warning to all growers who intended planting vines which might be used for the production of wine or spirit.

For some time now the accumulating stocks of wine and spirit have caused some concern to winemakers and growers alike, and if further unrestricted planting is carried out, a difficult situation will be further aggravated.

In the past few years there has been quite a considerable area planted with wine Grapes in various parts of Australia, and even before these vines come into bearing, the statistical position of accumulated stocks of wine and spirit is more than sufficient to keep all markets fully supplied. Unrestricted planting of wine and spirit varieties of vines has led the industry into periods of feasts and famines, glutted markets and years of scarcity, with the consequent policy of uprooting or grafting over to other varieties.

### Stabilised Position Needed.

Just how a stabilised position can be arrived at is very difficult to say; it is a problem which needs the attention of all concerned, and more particularly the attention of the grower, for the burden of a glutted market in wine Grapes will fall most heavily on his shoulders. A grower who is also intimately associated with the manufacture of wine and spirit makes the following survey and suggestions on what might be termed "Grape Production Stabilisation."

"Following upon the resolutions passed at the last meeting of the Grape Growers' Council of South Australia, I have given further thought to the matter of regulating vine plantings rather than actually preventing further plantings. In many cases winemakers are short of certain varieties, and it would be bad policy to prevent planting these required sorts because of resultant loss of prospective financial profit. On the other hand, some districts still have a surplus of unwanted types; these latter are a constant menace to a sound balanced stock position, and in all probability could be eliminated with advantage to the industry generally, but under present conditions only at great hardship possibly to the vineyard owners.

"Also, the Bounty Act permits of land being planted with vines to-day

which may have had only scrub on it for 80 years, but was a vineyard prior to 1908. If there was much of this land, its resuscitation as vine land would merely be an added menace to the industry. Presupposing that legislative help comes to the industry—and it would appear that only the States can accord us this—it is suggested that consideration be given to the following:

"1. Every registered vineyard owner delivering Grapes, dried or fresh, to a licensed processing house shall pay a levy of so much a ton (the amount to be determined each year and to be used as a fund for the general good of the industry).

"2. Every land owner desiring to plant vines must first secure a permit, and then pay so much an acre spread over a period of years to the general fund (this would permit of varieties in demand being grown where required).

"3. Every vineyard owner desiring to grub out unwanted vines to be compensated, subject to the consent of the appointed authorities at the rate of so much per acre (this should lead to more balanced areas so far as varieties are concerned, and help to maintain uniform prices).

"The above should help to stabilise conditions in the following way:

"1. Building up a fund which may be used for the purpose of advertising wines and dried fruit (if necessary), and generally helping the viticultural industry to help itself.

"2. Assisting in a more balanced production of wine types especially, so that wine Grapes will be used for wine making, and spirit types for spirit making.

"3. Showing the manufacturing side of our industry that, as producers of raw material, we are pre-

pared to assist in the sale of the manufactured article, and also not face the manufacturers with other than seasonal gluts and famines.

"This should be an assuring feature to the winemaker, and help him in forming a policy to deal with a static number of vineyard acreages over the years, whereas at present the maker never knows when he will be faced with increased production from increased plantings at present controlled by no one.

"In the absence of some such scheme founded on the resolutions passed at the latest Grape Growers' Council meeting, one might well anticipate some hard years for growers if our wine and spirit stocks are, by reason of increased plantings and good Grape yields, permitted to reach such levels that the absorption power of the combined markets cannot cope with the quantities made."

"The constructive element in the foregoing suggestions should commend themselves to all thoughtful persons connected with the wine industry, whether their interest lies in the growing of Grapes, or in the manufacture of the finished product. Although increasing quantities of Australian wines have found a market in the United Kingdom, there will come a time when saturation point has been reached. That will mean the inability for the trade to absorb all the Grapes grown on vines now planted. There are still areas of vines which have not reached bearing age, and if unrestricted planting is further indulged in the position will undoubtedly become chaotic.

### The First Watering.

The first irrigation of the season will commence on Friday next, August 26. There is always a great deal of argument about the fixing of the first

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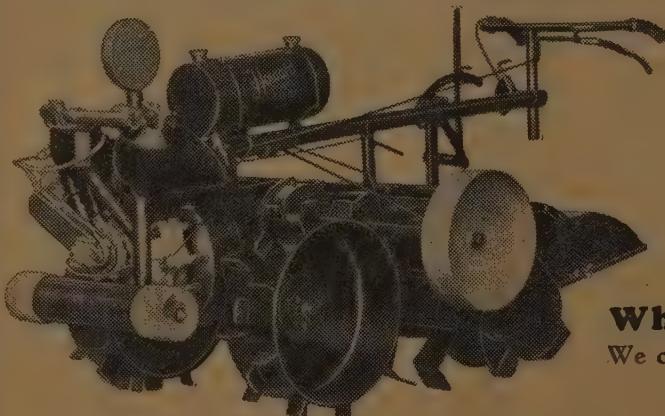
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irrigation, owing to the different soil conditions on the various soil types. Whereas on one type the cover crop has taken so much moisture out of the land that ploughing is impossible, on another type the tractor which was employed to rotary hoe the cover crop became bogged on several occasions. Taking into consideration the maxim that the "greatest good to the greatest number" should be followed, the Irrigation Trust have struck a happy medium by arriving at the date of August 26.

#### Spraying.

Sultana buds are swelling and there is now a rush for spraying material to give these vines a spraying with Bordeaux mixture used at a double concentration to the ordinary Summer strength.

This means that the 6:4:40 formula would be doubled—12 lbs. of bluestone and 8 lbs. of lime to 40 gals. of water will be used. The double concentration used before bud burst has met with a great deal of success in places where Black Spot has been troublesome, and by following up this spray with another one using the ordinary 6:4:40 solution has definitely checked the trouble from spreading, and has minimised the amount of damage to a small degree. The more orthodox Winter treatment, which consists of spraying or swabbing with sulphuric acid and iron, or with a ten per cent. sulphuric acid solution alone, has not been used to any extent this year, partly owing to the fact that the Black Spot outbreak came later in the season than usual, and as a consequence little pitting is noticeable on the canes. When the attack comes in early Spring the rods are sappy and become an easy prey to the ravages of the spores of the disease, but when the disease develops during mid-Summer the cane is able to set up a protective barrier on the outside surface which the spores find it impossible to penetrate.

In a late development the tender part of the young growth is attacked, and also the fruit carries black scars indicating infection. A bad attack of Black Spot usually follows a year which has developed the disease in a mild form, but has not spread in epidemic manner, so that this season growers are taking more precautions than in other years by spraying the vines before bud-burst, and this will be followed by later spraying with Bordeaux at ordinary strength.

#### Scale on Citrus.

Since the appearance of Red Scale on citrus trees in Remmark, the Murray Citrus Association has organised a vigorous policy of spraying and fumigation to hold the disease in check. A fumigation plant has been in operation. This branch of the Association was able to purchase it with the moneys received from levies on packed fruit, together with that of an accumulated surplus carried over from former years.

A plant consisting of 10 tents, blower, poles, tape lamps, etc., was purchased at a cost of approximately £186, and during the past season 1,340 trees were sprayed and fumigated. The cost to the grower for spraying with white oil, followed about 6 weeks later with a fumigation, is on the average of one shilling and one penny per tree. As the grower contributes one half-penny per case to the Association this levy is used to cover administrative costs, working costs and cost of material, so that a charge of 1/1 per tree must be considered entirely satisfactory.

## TIMBER FOR BOXES

### New By-Law by Customs Department Penalises Fruitgrowers

#### Prompt Protest is Lodged.

THE FRUIT INDUSTRY, in co-operation with others interested has lodged a protest against a tariff decision which came into operation on July 18 thus:—

#### Timber for Making Boxes.

Undressed hemlock and undressed spruce: By-law 69 is to be amended by adding at the end thereof the following, viz.,

For the purposes of this by-law the term boxes is limited to woods or containers (other than casks), of the types used in the merchandising of goods, and ordinarily sold with the goods to the purchaser (By-law No. 946).

The effect of this decision is to make dutiable at 12/- per 100 super feet all timber for use in boxes which are not of the types used in the merchandising of goods and ordinarily sold with the goods to the purchaser.

Large quantities of these boxes are used in the fresh, canned, and dried fruits industry as picking boxes, lug boxes, sweat boxes, and cool store boxes.

The egg industry is also seriously affected.

The increased cost of these containers by reason of this by-law—about which the industry was not consulted—runs into thousands of pounds sterling.

It is understood that the Customs Department is desirous of collecting revenue where the intentions of the present Act and by-laws are being evaded, i.e., on boxes used as furniture for holding firewood and briquettes, also on large containers used for transporting household furniture. But it is evident that the new by-law is far too wide in its sweep.

A deputation consisting of representatives of the fresh, canned and dried fruit industries, the fishing industry and the timber trade waited on the Collector of Customs, Melbourne, on August 29, putting forward a strong case for the limiting of the wording of the by-law to embrace only such items as were known to be reasonably dutiable.

The Collector of Customs promised to transmit the evidence to the authorities at Canberra at once, and in answer to a question stated that if the by-law were amended such would be retrospective as to the date on which it was gazetted.

It is quite certain that the industries concerned view with alarm this unexpected decision to increase costs. Strong protests are being made to Canberra to those concerned. It is to be hoped that the Department will speedily announce the specific new items on which duty will be chargeable and that such will not include cases used in primary industries.

#### EASE IN CULTIVATING.

##### How the Rotary Hoe Helps.

The attention of readers is directed to the advertisement in this issue concerning the Howard Rotary Hoe. Visitors to the Melbourne Royal Show will see the hoe demonstrating on Stand 96 at the rear of the State Savings Bank building near the corner of Smith and Patterson streets.

The Howard Rotary Hoe is easy to manipulate and gives a modern method of cultivation. No ploughing or harrowing is needed as the hoe does the full job. Its operation is also very economical. Wild growth of thistles, bracken and coarse grasses give way to rotary hoe cultivation, and better crops are claimed by the Victorian distributors, Messrs. E. Hassett & Sons, of 626 Bourke-street, Melbourne.

The Howard can be had in several sizes to suit any particular requirement, from the small "Junior" and the "eight" to large tractor units. Many unusual attachments are also available. The Howard can be harnessed to drive a chaff cutter, mow grass, as a circular saw, cover furrows, in fact, it is of almost universal use on a farm or orchard. Write Hassett for a descriptive catalogue showing the many units or, better still, see them at the Royal Show or at the Melbourne showrooms, 626 Bourke-street, Melbourne.

#### CASKS AND BARRELS.

##### For Use on the Orchard.

As will be noticed in the advertisement of the Hudson's Stores, Melbourne, in this issue, they offer a full range of barrels, casks and tubs for various uses on the orchard and farm. These are quite clean, tight and sound and any size required can be obtained at very reasonable prices. For spraying and mixing a cask is the best provision.

Hudsons also carry a large range of orchard and garden tools, and equipment and will be glad to quote or advise upon any article required, either personally or by mail.

As Victorian distributors of the "Wonga" high-pressure knapsack spray, Hudsons are in a position to meet all spraying and dusting requirements of orchardists. Their address is 655 Bourke-street, Melbourne, near the Spencer-street Station, telephone M 5873 and 5874.

## Revision of Ottawa Agreements?

CONSIDERABLE SURPRISE was expressed when a cable from London was published in the Australian press that alteration to the Ottawa Agreement were pending. The Melbourne "Argus" stated on August 29 that an Anglo-American trade pact was in process of being completed, and that American motor car manufacturers, fruitgrowers and wheat producers would be amongst the direct beneficiaries.

#### No Duty on Fruit.

Wide concessions are to be made on American fresh fruits. Raw Apples, now subject to a duty of 4/6 per cwt., will be placed on the free list.

Oranges now 3/6 per cwt.; Grapefruit now 5/- per cwt., and Pears, now 4/6 per cwt., will also be allowed to enter duty free from the United States, if the present offers stand.

Other fresh fruits likely to be placed on the free list include Melons, Pumpkins, Lemons, Limes, Grapes, Peaches, Plums, Apricots, Cherries, Gooseberries, Strawberries and Pineapples.

The tariff on American dried fruits will also be virtually eliminated. Natural, dried Sultana type seedless Raisins will be placed on the free list.

The Chairman of the Australian Apple and Pear Council, Mr. J. B. Mills, issued a reply stating he had received from the Council's representative in London (Mr. Everard Ross) an intimation of this press forecast. He believed that the details set out were what had been requested by American representatives, and, as the agreement was one between the British and United States Govern-

ments, the Council had not yet been advised by the Federal Government whether finality had been reached.

Mr. Mills said that the Council expected that the Australian delegation to London would have been able to make some arrangement for a protected marketing period as suggested by the Australian Agricultural Council before the Australian trade delegation left for London. It was suggested then that an agreement between Australia, Great Britain and the United States could be reached to provide for a market-free from United States competition from March 15 to August 15 of each year. If the Australian delegation had been able to arrange this, producers in Australia would be in a reasonably sound position in the British markets. On the basis of the arrangements stated in "The Argus," and provided that no compensating factor had been agreed to, Mr. Mills said, the outlook for the export of Apples and Pears from Australia would be gloomy, as the duty of 4/6 per cwt. on American Apples and Pears was of considerable value, being equal to about 1/10 a case on the English market.

Since the foregoing was published, other sections of the press have stated that whereas an agreement has been reached between Great Britain and U.S.A., the details will not be released until September.

This infers that the cabled details as above are premature.

The Australian Apple and Pear Council, in co-operation with its London representative and the Empire Fruits Council, are in touch with the situation.

## AGRICULTURAL PIPES

### ALL SIZES

#### Quality Unsurpassed

Railways allow 21% Freight reduction on Truck Lots.

Prices on Request to .

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ESTABLISHED 50 YEARS

## KARRYBETTA FRUIT TRAY • KARRYBETTA FRUIT CASE

### Betta Pack Fruit Storage Shed

For next month's issue we have booked a FULL PAGE to fully describe the advantages of these revolutionary methods of marketing your fruit. PROGRESSIVE GROWERS, watch out for this startling announcement.

## The Nitrogen Age

FOR uncounted centuries the production of animal food has been possible only in places where nature made the grass and vegetable food grow, and only in places where the natural fertility of the soil has been such that the crops would flourish. Later discovery was made that manure and animal refuse increased the fertility of the soil or produced a fertility where none had existed. Men learned the value of fertiliser and transported it from place to place. It was learned that fodder crops, clover and legumes in particular, suitable for feeding the herds, also served to improve the soil and make it better for the raising of vegetables in the following season.

With a knowledge of the habits of nature, co-operation with nature became possible, but the supply of food still depended upon her spontaneous generosity. Man's status in the universe had altered. With the unlimited supply of nitrates at his command he has the means of procuring all of the food which he may desire.

Except for certain bacteria and primitive plants, no plants are able to live without nitrogen, and until recently all nitrates in the world had come from the putrefaction of organic matter, some of it living recently, and some, like the material which has made coal and the caliche of Chilean nitrate beds living ages ago. In addition, there is the relatively small amount of nitrate which is brought down by the rain and snow and which is apparently formed by the combination of oxygen and nitrogen in the upper atmosphere under

the influence of the electric discharge, lightning and the aurora.

All plants, except certain primitive ones which are able to use the nitrogen of the air, require nitrates for their life processes. During their growth they produce fats and carbohydrates from the carbon dioxide of the air, and proteins from the nitrates of the soil. Some plants are suitable for food for man; some are eaten by animals. The animals convert the plant food into animal fats and carbohydrates and proteins. Men eat the animals and convert their nitrogen compounds into human protein. The fats and carbohydrates give energy, but the proteins are muscles, nerves and brains.

All important military (and civil) explosives are compounds of nitrogen and are made from the same raw materials as nitrogenous fertilisers.

Napoleon's dictum that "an army travels on its stomach" will bear amplification. He referred to the army's food supply—and that is the fixed nitrogen of the nation. An army travels by means of its nitrogen. But it fights by means of its powder and explosives—and it fights by means of its nitrogen. Military leaders' thinking is utterly dependent upon the nitrogen compounds in their brains, and an army thinks by means of its nitrogen. Indeed, all thought and all civilisation, is a by-product of nitrogen.

Plants and animals need other elements besides nitrogen. Phosphorus, potassium, iron, calcium, magnesium, sulphur and many others are abso-

## Apples and Pears

WORLD PRODUCTION OF APPLES BETWEEN 500 MILLION AND 600 MILLION BUSHELS; PEARS, BETWEEN 125 AND 150 MILLION BUSHELS.

THE ANNUAL PRODUCTION of Apples throughout the world is estimated in the recent report by the Imperial Economic Committee to be between 500 and 600 million bushels. The world production of Pears is between 125 and 150 million bushels. There has been a definite decline in the number of Apple trees in the last twenty years, and the areas under Pear trees has not been expanded to any great extent, nevertheless the production of Apples has been maintained and the Pear output has increased. The reason for the size of the Apple crops being the same although the number of trees under cultivation are fewer is mainly because of specialised production in commercial orchards.

Because of the change in the method of production there has been a considerable improvement in the cultural technique, ways of preparing for market and marketing the fruit. Research has found improved means of transport and storage, also newer ways of utilising the fruit for canning, cider making and unfermented fruit juices. The wastage in heavy crop years has been reduced by the use of cold and gas storage.

The Apple production in the United Kingdom and the Dominions only accounts for about 10 per cent. of the world total, but Empire countries has been growing in importance since the war, and from 1934-37 produced approximately 48 million bushels a year, in comparison with 36 million bushels in the years 1924-28.

lutely necessary. Available nitrogen determines the growth, the very life and death even, of the plant or man, and where the organism grows it contrives to find a sufficiency of the other elements which are essential to it. While "nitrogen for growth" is a true saying for the grower of grass, fruit, vegetables and cereals, it is also profoundly true for the race. By its nitrogen the race lives and moves and has its being; by its nitrogen, it grows in mind and body.

See that your nitrogen is natural and in the form of nitrate, which is immediately available to the plant.

In Chilean nitrate of soda you have nature's own blend and balance, and furthermore it contains active vital elements, for instance, sodium, iodine, boron, magnesium, which are known to be of the greatest value to plant and animal life. Chilean nitrate of soda is non acid forming and its value is widely recognised by farmers, orchardists and market gardeners.

## New Service In Vineyard Cultivation . . .

## Sungrubber Utility Tool



STEEL OR  
RUBBER TYRES  
Sunshine Massey Harris  
ORCHARD TRACTOR

A specially-designed and economical Tractor with power to work any orchard implement—including the grubber for sub-surface cultivation. It has all the advantages that make Massey Harris Tractors supreme for low fuel consumption and long trouble-free service, plus these special features:—(1) Low set and streamlined; (2) Shorter wheelbase; (3) Turning brakes for quick turning between vines or trees; (4) Steering wheel adjustable for height; (5) Lower platform; (6) Special guards which enable tractor to be used close under branches without risk of damage to trees or crop.



The Sungrubber is supplied with 7 or 9 tynes, and mouldboard plough and disc harrow attachments are also available. It is fitted with screw depth regulation and a simple and effective automatic lift, making it very convenient to operate from the tractor. It is quickly adaptable by the operator to the following important uses, and performs each with the maximum of efficiency.

### As A Panbreaker

Using 3 to 9 tynes as desired, it is invaluable for breaking up the hard pan bottom developed by years of constant working and heavy irrigation. With 3 tynes arranged about the centre of the frame, it will cultivate to a depth of 12 to 16 inches.

### With Pivoted Mouldboard Plough Attachment

(As Illustrated Above)

Furrows adjustable from 7 to 10 inches wide; generous clearance; pivoted feature avoids damage to root growth. Ploughs either "on" or "away." A third furrow attachment can be supplied if desired (2-furrow plough cuts wide furrows only). Tynes can be left on the implement to cultivate centre of row at the same time.

### With Tandem Disc Harrow Attachment

Has 4 gangs, each of 5 discs; set for in-throw or out-throw. Cultivates 6 feet. Leaves a well pulverised and level surface.

### See It At The Melbourne Royal Show

The Sungrubber is one of the many interesting exhibits awaiting you at the Sunshine Massey Harris Pavilions and Display Grounds, Skene Street, Melbourne Showgrounds. Conveniently located near the Railway Station and the Government Pavilion.

(If you are not visiting the Show, ask your local agent for full details, or write direct.)

## Production of Natural Fruit Juices

### Clarification, Storage and Sterilisation of Apple Juice

(By Dr. T. H. Harrison, Commonwealth Fruit Officer in London.)

#### PART II.

(Continued from page 27, August "Fruit World.")

**B**ECAUSE of the tremendous development in the production of pure fruit juices in England and the Continent, the Commonwealth Fruit Officer in London (Dr. T. H. Harrison), has prepared a valuable report describing the process.

The first portion of the report was published in the August "Fruit World and Market Grower," and dealt with the extent of the pure fruit drink business, the processes involved—particularly as regards the preparation of Apple juice. After describing the Apple press and the settling of the liquid, Dr. Harrison's report continues as follows:

#### Clarification.

This may be achieved by several methods.

- (a) By passing through a de Laval or Sharples centrifuge fitted with a special fruit juice bowl. (See illustrations in appendix). Cleaning at intervals, which vary with the amount of suspended matter to be removed, is essential.
- (b) By pumping through a pulp filter, such as supplied by Stowe. This needs cleaning after two or three hundred gallons, and necessitates the use of a pulp washer if effective working is to be maintained without heavy expense. Efficiency depends on adequate and frequent repacking. (See details in appendix).
- (c) By the use of a Seitz box filter, which also requires periodic attention. (See details in appendix.)

Each of the above does the work of clarification satisfactorily when properly operated. Sometimes centrifuging plus pulp filtration are employed with improved efficiency.

From this point, treatment differs considerably, depending on whether the juice is to be stored for long periods before bottling, or to be bottled directly, either before or after sterilisation. The various processes have been mentioned, but the order may not remain the same throughout.

#### Storage.

On a large scale, the Seitz Boehni process, in which juice is stored in large tanks under carbon dioxide at eight atmospheres pressure, is the most popular. The tanks are made of steel, tested to withstand twenty atmospheres pressure. They may be glass lined, but more usually coated with a special stove enamel, evolved to meet the severe requirements of fruit juice storage. They can be sterilised by steam, and are supplied by Munk and Schmitz, of Kohn, Germany, in many different shapes and sizes. English steel merchants also supply tanks for this purpose, but as yet lack the experience of their competitors in refinements of manufacture. One fruit juice firm in England found that, despite duty and freight, the German equipment was less expensive than the English. The possibilities for Australia will need independent exploration.

Indispensable to this system is a supply of carbon dioxide, an impregnating pump and a source of sterile water. In practice, the large tanks are steam sterilised, then filled with sterile water, which is replaced by carbon dioxide at eight atmospheres pressure, every care being taken to exclude oxygen from the tanks. By means of good equipment, and with

proper care, juice can be kept indefinitely by this method.

An alternative method of storage is in casks, which may be treated internally to give a smooth surface to facilitate sterilisation. Several preparations are available for this purpose, i.e., lacquers which will not crack, nor convey any odour to the juice, and which will stand any normal sterilisation process.

A third method involves the use of 5 or 10 gallon glass jars, fitted with a special rubber cap, to permit of filling under sterile conditions. This cap has been devised in Germany, and is patented.

Both the latter methods involve sterilisation before storage, and the transfer, under aseptic conditions, of the sterilised juice.

#### Sterilisation.

This may be effected by two main methods:

- a. A cold filtration devised by Seitz of Germany. In this process, the juice is pumped through a filter, the pore space of which is smaller than any of the organisms found in the juice, or capable of producing fermentation and deterioration. This equipment has been proved to be very efficient, but is expensive because it is protected by patents. Claims made by interested parties that cold sterilisation was essential, not only to maintain the flavor, but to preserve the nutritive value of the juice, are discounted now by experience in Germany and Switzerland, where the considered judgment is that oxygen and oxidation are more important in influencing after-sterilisation flavor than the method of sterilisation, providing both methods are used properly. Pre-clarification is essential to the success of this method. It is also advised to delay bottling and to re-filter after a period if a brilliant juice, be desired.
- b. By pasteurisation, which can be secured by a high temperature for a short period (e.g. 180-190 deg. F. for 10 to 60 seconds), or by a low temperature for a long period (e.g. 145-165 deg. F. for 30 minutes). Details of pasteurisation technique depend largely on the stage in the manufacturing process at which it is employed. It is essential, however, to realise that, providing temperatures are properly controlled, pasteurisation can be an effective method of sterilisation without causing deterioration in the flavor of the juice. It is claimed that pasteurisation also inactivates the oxidase enzymes, an advantage of this method over the Seitz filtration.

For stabilising the juice, there are several other methods at present in the experimental stage, or as yet not demonstrated to be commercially applicable. They include—

- i. Matzka Process, which involves liberation of small quantities of silver in the juice by its passage through silver pipes. It is claimed that juice treated in this way has great stability, without alteration in flavor and nutritive value, but it is not permitted in Germany, because the juice so treated contains something other than pure fruit juice. It is claimed, too, to be in-

## To Increase Fruit Sales

### NEW SOUTH WALES GROWER POINTS THE WAY BY SUPPLYING SCHOOL CHILDREN.

Thomas Carlyle Morrison, fruitgrower and fruit merchant, of Gosford, N.S.W., previously manager of the Gosford Co-op. Packing House for eight years, when speaking before the Fruit Industry Commissioner (Mr. McCulloch), suggested that the sale of citrus fruits on the local market could be increased greatly by the sale of loose fruit and pure Orange drinks.

Trained specialists were needed in the three main branches of the work—to advise growers on cultivation and production, to keep continuity in the packing of any grade of fruit, and to provide better marketing facilities, reliable market information, and general distribution of the fruit.

Proprietary packing houses should be encouraged, stated Mr. Morrison, as they assist to maintain a high degree of efficiency.

By selling loose Oranges to the 100,000 school children in the Sydney Metropolitan area it was estimated that if every child bought one a day, 120,000 cases a year, or 500 cases a day, would be consumed. Mr. Morrison illustrated this by showing how he, himself, had created a market at one school. There were 500 pupils, thus one Orange a day would mean 15 cases a week, but he had been selling 20 to 30 cases.

Practically no co-ordination existed in the marketing of Oranges and the markets were very often glutted. A reliable brand and pack was necessary to insure good sales, and this could be obtained through a central packing house, concluded Mr. Morrison.

expensive in operation, but remains to be tested commercially on Apple juices.

- ii. Katadyn Process, which involves a somewhat similar principle. By means of a weak electric current passing between two silver electrodes in the liquid to be sterilised, minute traces of silver are incorporated in the liquid, the organisms therein being killed by the silver ions, which have great germicidal activity. Consistently satisfactory results would appear to depend on adequate clarification of the juice. Developments with this process are being closely watched.
- iii. Schoop Process, which claims effectively to suppress yeast action by the addition of small amounts of common salt plus a plant product claimed to inactivate the oxidase enzymes. Stability is thus given the juice during storage without elaborate equipment for prestorage sterilisation. The process is being investigated in England at present and will be reported upon when necessary information becomes available.

#### Bottling.

Depending on details of procedure outlined above, clarified juice, when presented for bottling, may be—

- (a) sterile; or
- (b) non-sterile, but possibly stable. If dealing with the first type, it is essential to use clean, sterilised bottles, to transfer the sterilised juice to these bottles, and to cap with sterile caps, under completely aseptic conditions—2 per cent. solution of  $H_2SO_4$  used for sterilisation. If this be not achieved, sterilisation will again be necessary, preferably by pasteurisation.

It is necessary to fill to the cap in order to prevent oxidation, which would occur if any air were left in the bottle, from adversely affecting the flavor and stability of the juice.

For the second type of juice, it is essential to fill the bottles only to within about 1 in. from the cap, to allow for expansion of the juice during pasteurisation—the only method of sterilisation applicable to the bottled juice.

Special bottling machines, varying in size, are now available. Most of these include facilities for washing and sterilising the bottles, and a means of measuring a given quantity of juice into the bottles.

#### Capping.

The caps consist of a thin circular layer of cork mounted in tin foil or

similar pliable metal. The edge of this cap is crimped around the flanged top of the bottle by means usually of a simple, hand operated capping machine.

The precautions outlined above for bottling apply with equal force to capping if sterility of the juice is to be maintained.

#### Sterilisation After Bottling.

A simple device for pasteurisation after bottling was seen in operation at Kirdford Growers Ltd. It consisted of a concrete trough containing water maintained at a temperature of 145 deg. F. by means of steam. Into this were lowered wooden frames carrying the bottles to be sterilised. The bottles were completely immersed for 45 minutes, thus ensuring that the juice reached the desired temperature for at least 30 minutes. Rapid cooling, which is desirable to avoid loss of flavor, was obtained simply by exposure to atmospheric temperatures of 35-40 deg. F., or by immersion in water of approximately the same temperature.

Apple juice treated in this way has maintained sterility and stability for at least twelve months. This method could easily be modified to suit local conditions by any intelligent fruitgrower in Australia.

#### Labelling and Packing.

Distinctive and attractive labelling of all merchandise is a requirement of modern trading. For Apple juice a label which suggests the purity and health-giving properties of the juice, and associating it definitely with Apples, is desirable. The juice and its virtues, not the manufacturer, should form the main motif of the label.

When labelled, and cleaned, if necessary, the bottles are ready for distribution.

(To be continued)

#### A HANDY HINT.

##### A Spade With Teeth.

For trenching or digging post holes, more satisfaction will be had if a spade with teeth is used. The transformation is simple. Fine teeth cut into an ordinary 7½-inch wide spade can be provided by cutting with a hacksaw V-shaped four spaces about 1½ inches deep and cutting the outside edge on each side to make five complete V-shaped teeth. If you have not got a hacksaw, a blacksmith will do the job neatly and quickly at little cost. This will be found particularly suitable for heavy soil.

# Motor Cars, Trucks, Tractors

## M.P.G. INDICATOR

Simple but Accurate Device

ACCURATE testing of fuel consumption is usually a trouble-some operation. In addition, there is the inconvenience of running the test tank dry to get a definite result, with the subsequent re-coupling of the normal fuel supply.

To make consumption testing a simple and straight-forward business an English concern has introduced a petrol meter. It takes the form of a cylindrical container with a glass gauge tube along its full length.

### Fuel Drawn From Main Tank.

The container is suspended from the windscreen, or any other convenient fixing close to the driver. Two

taps at the lower end are joined by rubber tubes to the fuel pump outlet and to the pipe between the pump and the carburettor. These pipes pass under the windscreen, through the scuttle ventilators, or through other suitable openings.

Both taps are opened, the engine started, and fuel passes up into the cylinder and on to the carburettor. Surplus petrol fills the cylinder, and when it is full, as indicated in the glass gauge, the engine is stopped and the inlet tap turned off, thus cutting off further supply.

The engine is next run gently until the spirit drops to the "start" mark

on the petrol meter. Then the speedometer is set to zero, and the car is started, still with the inlet tap closed.

A mile run at a steady speed, about 30 m.p.h., is made, and at the exact mile the tap leading to the carburettor is closed. This holds the remaining petrol in the device, and as the cylinder is calibrated in miles per gallon against the gauge glass, the level of fuel shows the consumption directly on the scale. Both taps can now be turned on, and the car driven normally until it is convenient to remove the meter.

Several tests at varying speeds may be taken with very little delay, while if longer tests are required the mileage covered when the fuel drops from the "start" mark to the lowest point on the scale can be taken. The mileage registered is multiplied by 10 to give the miles per gallon, since the cylinder holds exactly one-tenth of a gallon.

### Prove Fuel Pumps Efficiency.

Ordinary rubber tubing is used to connect the apparatus, as it will slip easily over existing unions, and it makes a satisfactory temporary joint, especially if a turn or two of copper wire is also twisted round.

In the majority of cases it is only necessary to disconnect the union of the short pipe connecting the petrol pump to the float chamber. An incidental use of the tester is that it will show at once if the fuel pump is not working correctly, since the height of the tank above the carburettor reveals at a glance the lifting power of the pump. If the tester does not fill up rapidly to the top level an inefficient pump is indicated, while air bubbles in the gauge glass show that there is a leak or loose union between the pump and the tank.

A plunger is fitted inside the tester to draw fuel up if the mechanical pump should fail to lift, or if the system should become air-locked when coupling up. Tests in England on cars the petrol consumption of which was known, have demonstrated the accuracy of the device.

### DATA ON CHEVROLET TRUCK RUN.

Passed 50,000 Mile Mark at Spokane, Wash.

Chevrolet's long distance safety and dependability truck run, which passed the 50,000 mile mark at Spokane, Wash., June 14, five months and three days after its start, is still chalking up a record of performance, durability, and economy, figures from the Contest Board of the A.A.A. in Washington, indicate.

The truck, a stock ton-and-a-half model, selected from the assembly line at Flint, carries a 4,590-pound load of steel. The gross weight of the vehicle, with driver and observer, is 9,260 pounds. The truck has maintained an average road speed of 32.37 miles an hour, and averaged 15.36 miles per American gallon of petrol, official figures show.

### MOTOR TRUCKS INCREASE.

240,613 in Australia.

In May last, Australia was using 240,613 commercial motor vehicles, an increase of 168,762 since the end of 1938. On the same date, motor car registrations reached the peak figure of 531,083, and motor cycles of 80,162. The latter have declined by 7,887 since 1929.

### RECKLESS CYCLING.

Police to Take Action.

Further complaints of the conduct of certain cyclists have brought forth an assurance from the police, that action is to be taken against those who ride more than two abreast, pass on the wrong side of other vehicles, ride without rear lights, etc., reports "The Radiator," official journal of the R.A.C.V.

Special attention is to be paid to racing cyclists, and this is regarded as an overdue move to safeguard the riders themselves, as cycle racing on the much used country roads near to the cities has long been a serious danger.

Enforcement of rules which are designed even more for the safeguarding of cyclists themselves than for others cannot be regarded as an unsympathetic move against this form of transport.

### OIL SUPPLY UNLIMITED.

Soya Bean and Other Vegetables as Source.

A series of exhaustive tests made recently in England have demonstrated that there are unlimited possibilities for the production of fuel and lubricating oils from vegetable plants. Oil extracted from the Soya Bean was found to be an excellent substitute for mineral oil. It was also found that similarly practical oils could be produced from the palm, cotton seed, and ground nut. In each case the fuel would prove of great value in time of national emergency.

Among the large variety of oils tested were those extracted from the following plants or trees: Castor, grape, maize, pumpkin, beechnut, lupin, pea, poppy, ground nut, sunflower and chestnut. Trials were carried out on the bench and then road transport vehicles, including lorries, covered thousands of miles with vegetable oils providing the motive power.

Captain John Walter, the engineer who was responsible for the tests, considers that any of these vegetable oils are an alternative fuel, quite as satisfactory in normal operation as the standard gas oil supplied by the petroleum companies.

He sees a big future for vegetable oils as fuel generally in about 10 years' time when the Diesel engine is in more general use. "Soya Bean oil makes ideal fuel," he said this week. "Already it is being grown in East Anglia and on Henry Ford's farm at Boreham Wood, Herts. It can be grown in large quantities in many parts of the Empire."

"At the moment I cannot say that running engines on vegetable oil fuel is economically practical, because supplies of refined Diesel oil are so readily available."

### TESTING OF HEADLIGHTS.

Some members of the Royal Automobile Club of Victoria do not appear to be aware of the fact that they are entitled to have their headlights tested free at R.A.C.V. service stations.

The agreement between the Club and the service station provides that the contractor shall test the focus of the headlights of members' cars free of charge. If the contractor has no apparatus available for the purpose, the R.A.C.V. undertakes to supply it if the circumstances warrant.

**These**  
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Important  
Stands  
at the  
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**Whatever you do,**  
**be sure to**  
**inspect them**

**PRESTON MOTORS PTY. LTD.**

Cnr. Russell and Little Collins Streets, Melbourne. Phone: Cent. 9200.

#### Sales and Service Branches:

114 Franklin St., and 400 Elizabeth St., City.  
Cnr. Sydney Rd. and Albion St., Brunswick.  
Cnr. Chapel and Garden Sts., South Yarra.

Cnr. Spencer and Dudley Sts., West Melbourne.  
103 Queen's Parade, Clifton Hill.  
177-181 High St., Malvern.  
Cnr. Leeds and Hopkins Sts., Footscray.

#### TWENTY-FOUR HOUR SERVICE.

Cars: Spencer St. Service Station. Trucks: Franklin St. Service Station.

## Orchardists and Fruit Cool Stores Association

THE quarterly meeting of the Orchardists and Fruit Cool Stores Association of Victoria was held at the C.T.A., Melbourne, on August 30, 1938. Mr. F. Petty presided over a large attendance.

It was decided to make every effort to secure the retail sale by count of large fruit such as Apples, Pears, and Peaches.

The Chairman reported the effort to secure reduction of water rates paid by orchardists. This was being taken up by the Chamber of Agriculture.

Mr. J. H. Lang and Mr. J. M. Ely told of the serious effect on the Harcourt district orchards because of the failure of the Coliban irrigation system.

1. Decided to press for the enlargement of the Ashbourne cut on the Campaspe River, diverting the water to the Coliban system.

2. The erection of a weir on the Campaspe River for impounding more water for diversion.

3. That the new reservoir in the Coliban catchment area (a three-year contract) be completed in one year.

At the instance of Mr. L. G. Cole, there was a full discussion on the proposed Export Control Bill. It was decided to secure the attendance of the Acting Minister for Commerce, Mr. Cameron, if possible, at a meeting of the Peninsula growers.

Sundry alterations to the Bill were projected and official recognition of the Orchardists and Fruit Cool Stores Association was sought. It was decided to request that in the election of representatives on the Board (if the Bill becomes law), a State wide vote be taken of the growers who export fruit.

Mr. H. J. Noonan reported on the Apple Publicity Campaign, Apple Week, Health Week, etc. At the instance of Mr. J. J. Tully, a cordial vote of thanks was accorded the Apple Week Committee.

It was decided to convene a meeting of proprietors of private cool stores at the end of December, in order that technical advice could be given. Thus also the opportunity for increased membership for the Association would be provided.

### EXPORT OF GRAPES.

#### Steady Increase Reported.

The steady increase in the export of fresh Grapes within the last few years is reflected in statistics disclosing that the total exported in the period from January to June, 1938, amounting to 118,000 cases, was 17,629 cases in excess of 1937 shipments.

Additional shipments from West Australia, and to a lesser extent from New South Wales and Victoria, contributed primarily to the increase.

Exports to the Straits Settlements increased in the current season by 11,114 cases, and shipments to Eastern destinations, other than Ceylon, and the Straits Settlements by 6,027 cases.

A reduction in the shipment of Grapes to Ceylon from N.S.W. and Victoria resulted in a decline in that trade in 1938 to the extent of 2,476 cases.

Exports in 1935 were approximately 79,000 cases, increasing to 88,000 cases in 1936 and to 101,000 cases in 1937.

### FOR SALE

Harvey 3-furrow tractor lift orchard plow, practically new.

Harvey 15-tine tractor lift cultivator excellent condition.

Apply—

VICTORIAN PASTORALISTS SERVICES.

271 Collins St., C.I. Tel: F 2316.

### To make a Lime Kiln

#### Is It Worth While?

Doubt as to the wisdom of farmers doing their own lime burning in a lime kiln prepared with much labor was expressed by one speaker when Mr. W. F. Pfizer, of South Australia, recently told an audience how to construct a kiln. The objectionist stated that equally good results could be obtained by burning above ground provided that light timber was used.

In explaining how to build a kiln, Mr. Pfizer said that a lime kiln may be made anywhere where the sinking is good, but not on sandhills, because the heat and the working at the pit will cause the sand to cave in.

A kiln should be built according to the quantity of lime wanted, and when full should be as high above the ground as its depth. A small disused underground tank is ideal for burning lime; it remains free from dirt, and when shovelling out there is a hard floor to shovel from.

After the kiln has been dug out a layer of about 1 ft. of mallee boughs should be spread over the bottom, then about 2 ft. of mallee stumps, 1 ft. of lime stones not larger than 3 in. or 4 in., and this method continued—a layer of stumps and stones—until the top is reached, when it should be finished off with the largest and most solid stumps.

It is necessary to have vents at each corner and the centre. Hollow trees are ideal for this. When lighting a kiln, a gallon or two of petrol can be used to ensure a good start. In selecting the stones for burning lime, the harder the stone the better the lime will be, and the longer it will keep. White stones when burned will slake in about four weeks, but the red granite stone will keep for three months or even longer.

### SOIL EROSION.

We are in receipt of the report of the Committee appointed to investigate erosion in Victoria. After reading the report of this Committee appointed by the Government, no one could but realise the necessity for some action to be taken to prevent further erosion in the State.

Liberally illustrated with photographs, the report clearly shows the havoc wrought by this menace, and the reason for same, also remedies. Wind erosion chiefly effects the Mallee districts, landslides in the steeper parts of the State, particularly South Gippsland, and gullying throughout Victoria. This is chiefly caused through the earlier methods of clearing every vestige of timber from the land, overgrazing, bushfires, etc.

### FRUIT RESEARCH IN SWEDEN.

#### Cold-resisting Apples.

The State Experimental Farm at Svalov, Sweden, was formed in 1886 and has contributed much to the Agricultural industry in that country. Not only in seed and pasture research, and grains of all kinds, but also in fruit culture, experiments are being continuously undertaken.

Experiments are being made with regard to producing new varieties of Apples with good keeping qualities and resistant to cold—qualities which the Swedish climate renders necessary. Through the cultivation of tetraploid varieties, raised from diploid and triploid, it is hoped to influence the Apple-growing industry very beneficially.

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**RONALDSON - TIPPETT**

# THE MARKET GROWER

OFFICIAL ORGAN OF VEGETABLE GROWERS' SOCIETY OF VICTORIA, THE KOONDROOK & BARTHAM TOMATO GROWERS' ASSOCIATION AND THE SOUTH AUSTRALIAN FRUITGROWERS' AND MARKET GARDENERS' ASSOCIATION.

## Vegetable Culture

### PROBLEM OF THE SMALL POTATO IN A LIGHT CROP YEAR — SELLING METHODS IN THE QUEEN VICTORIA MARKET — CULTURAL HINTS.

**A**T the last monthly meeting of the Vegetable Growers' Association of Victoria, there was a very representative attendance of District Delegates, when a good deal of discussion ensued over the sample of Potatoes which are classed as chats by the Agricultural Department, which means the smallest size of Potato that is allowed to be sold for human consumption.

A season such as we have been passing through, with abnormally dry conditions, is sure to have its effect on the sample and quantity of Potatoes which are available for sale, and it was felt by the committee that the Agricultural Department regulations should be a little more elastic than they are at present, when Potatoes are very scarce there are always a larger percentage of small ones in the crop; these are quite good for human consumption and yet will not pass the Department's regulation size. The sale of these small Potatoes would greatly assist the producer, and help to recompense him for the light crop that he is digging. As conditions stand at present the producer is always afraid to submit his sample for sale, because of the possibility of being prosecuted by the Department for undersize Potatoes.

Of course, some small quantities find their way on to the market, and these find a very ready sale, many people who cannot afford to purchase the large ones are glad enough to use the small ones at a reduced rate, and when Potatoes are selling at £10 per ton and over there is no sound reason why the public should not have the benefit of these small Potatoes.

The reason why this regulation was brought into force was to try and stop the sale of low-grade Potatoes interfering with the sale of the first grade tubers, and, in plentiful times, this is quite sound reasoning, also, if we are dealing interstate this seems to be quite a sound law, but when our own people need the product, because of the scarcity of big ones, why not lift the restriction?

The question of the small Potatoes from the Brighton district was also discussed, for the crop that is grown in this district is always much smaller than country crops, and are cooked as new Potatoes very often in their jackets.

This crop is dug during the months of November and December; the Potatoes are dug on the green side, and sold in cases, for they would skin too severely if bagged, and the small ones from this crop are as sweet as nuts to eat when cooked in their jackets. It is not in any way deceiving the public, who can see what they are buying, and are eager to get this produce.

It was resolved to approach the Department of Agriculture and request that when small Potatoes which were under regulation size were sold in cases by the grower in the Queen Victoria Market, the Department take no action against the growers of such produce.

The fact of vegetable growers having had their names taken by officers of the Market, for transferring their produce on to the trucks of country buyers in the streets adjoining the market also caused considerable discussion. The position is that many country buyers of vegetables have very long motor trucks, which are much too big to be pulled inside the market, and according to market regulations, they have no right to pull into the market unless they have produce to sell, and this is quite a just law, for if these trucks were allowed in the congested parts it would cause a tremendous amount of confusion, and prevent growers from getting into their stands. So to overcome this, the practice has grown for vegetable growers to pull their smaller trucks out into the street, alongside the larger ones, and unload their produce directly from one vehicle to another, and, because it is the most convenient time when there is practically no traffic about in this quarter of the city, growers have been getting to

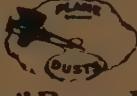
market about ten or eleven p.m., unloading to the country buyers, whatever they have previously ordered, and then putting their trucks in their market stands.

Now the Council claim that these growers are selling before the market opening hour, which is six a.m. on Monday, Wednesday and Friday, 5 a.m. on Tuesday and Thursday, and four a.m. on Saturday, but as this business is all done before midnight, the Committee failed to see how this unloading was in any way infringing on the opening hour of the market, for quite obviously it is done the night before.

The Vegetable Growers' Association have always been in favor of keeping strictly to the opening hours, but in this instance they fail to see how any objection can be taken to this class of business and resolved that if any further action were taken by the City Council, to sift the whole matter out, so that justice may be done to all concerned.

#### Cultural Hints.

Since the severe frosts which occurred early in August, the ground has again become caked on the surface, not having had sufficient rain to soak the soil and loosen the ground. Too much stress cannot be placed on



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the breaking of this crust, for if allowed to remain hard, it stops the growth of any crops which have not a very big root system, so the hoe, harrow and scuffer must be freely used, according to the room there is between the rows.

The Red Spider mostly makes a very vigorous onslaught during the next month until the warm, hot days come, and stirring the ground will be found of great assistance in checking this pest, especially with Potatoes, which if harrowed with a light harrow just as they are coming through the ground, will often save the need of having to powder this crop, to kill this pest.

#### LATE BLIGHT OF POTATOES.

**L**ATE BLIGHT, or "Irish" blight, caused by the parasitic fungus *Phytophthora infestans*, is responsible for serious losses in Potato crops.

#### Control Measures.

The Control Programme Advised by the N.S.W. Dept. of Agriculture is as Follows:

1. Use only healthy tubers for seed purposes. It is preferable to obtain seed Potatoes from a crop which has not been affected by the disease.

2. Spray the crop with Bordeaux mixture 1-1-10, or if good stone lime is not easily obtainable spray with Burgundy mixture. Lime sulphur and sulphur dust are of no value in controlling the disease.

The spray should be applied when the plants are from 6 to 9 inches high, and should be repeated at fortnightly intervals if weather conditions warrant it. Application should be made at high pressure through fine nozzles, and the spray should be directed on to all portions of the plant. Approximately 100 gallons of spray are required to treat one acre of full-grown Potato plants, the cost of the fungicidal ingredients being about 4/6.

If a late attack has caused serious damage to the plants at the close of the growth period, it has been found that some loss may be prevented by spraying the vines and the soil with copper sulphate (1 lb. to 4 gallons). This spray kills the plants and prevents further development of the fungus.

3. Under general conditions, however, when the disease has developed in a crop, allow the plants to die and dry completely before digging is commenced. The tubers should be picked up as soon as they are dug, and should never be covered with the dead plants. It is sometimes suggested that hillling will protect the tubers from infection, but unless the hillling is done so as to form a ridge, the effect is rather to form a funnel which may facilitate the washing of spores on to the tubers.

4. Sort out visibly-affected tubers before shipping or placing the re-

#### POTATO CROP SMALLER.

74,000 Tons Less Than Last Year.

Figures issued by the Victorian Dept. of Agriculture show that the area under Potatoes in Victoria for the current season will be approximately 42,000 acres, compared with 45,627 acres planted in 1936-37. There is no reason to vary the estimate of a three-ton yield an acre for the State, which will give an average yield 74,000 tons below the previous year's yield of about 200,000 tons.

Planting of the new crop has begun in the early districts, Western district, "early" part of Gippsland, and the market garden areas close to Melbourne. Comparatively little pitting has been done this season, as prices have been sufficiently good to induce growers to market immediately after digging. Prices rose from £9 at the beginning of the month to £14, but have since receded slightly. Deliveries have been normal, and the quality is reported to be good.

#### Melbourne Prices Fall.

The possibility of the ban on the entry of N.Z. Potatoes into Australia being removed had a disturbing effect on the Potato trade in Melbourne, and prices fell by 25/- to 30/- a ton during August.

MERCHANTS who were in communication with growers said that uncertainty prevailed in the country about the future of the market for Potatoes, and it was feared that heavy supplies would be forwarded to the city because prices may fall substantially below their present level.

Later: It is understood that the ban on N.Z. Potatoes is to remain.

remainder in storage. Tubers should be kept in a dry place and at a temperature of 38 deg. Fahr. or less, to prevent development of the disease in storage. Diseased tubers should be boiled before being fed to stock.

5. Practice rotation of crops: Do not sow Potatoes in the same area year after year. As far as practicable, remove and destroy diseased foliage and tubers.

## Protect Your Plants

FROM SNAILS, SLUGS, APHIS, AND ALL GARDEN PESTS WITH

## PESTEND SUPERFINE

(Tobacco Dust)

Expert gardeners and growers recommend the use of PESTEND SUPERFINE—either for dusting, spraying, or for dressing the soil.

Used in a spray-duster or pressure-gun, PESTEND SUPERFINE adheres better, lasts longer, and costs less than ordinary spraying powders.

PESTEND SUPERFINE Tobacco Dust is non-poisonous to plants, inexpensive and easy to use. Try it out yourself!

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# CANNED FRUIT NEWS AND NOTES

## VICTORIA

### The Goulburn Valley

W.B.C. PEARS SHAPING FOR HEAVY CROP. PEACHES AND APRICOTS MEDIUM — CULTURAL TECHNIQUE IMPROVES ORANGE QUALITY

By Our Correspondent.

THE WEATHER during July and August has been mild, with sufficient rain for immediate needs. Crops are growing satisfactorily, but grass is backward, and heavy falls are needed in the near future, especially in the catchment areas where the storage reservoirs are considerably lower than usual at this time of year, for irrigation and water supply are the life blood of the Goulburn Valley.

Pruning is just about finished, and bud development is rapidly taking place.

While W.B.C. Pears are looking particularly well, Peaches only have a fair showing, which indicate a medium crop. Apricots on present appearance will be fair to good.

Spraying is in full swing, with the annual 'Bordeaux mixture,' 12-8-80. (Twelve of bluestone, eight of lime and 80 gallons of water.) Most of the red oil sprays for San Jose on Pears have been completed. This spray is found to be very effective for this pest and when it is thoroughly done, keeps the trees in a clean healthy condition.

Tar distillate sprays were completed last month. Growers find this spray very effective in dealing with the green Aphis pest.

Considerable preparations are being made in the Shepparton district in preparing land and raising seedlings for the coming season's Tomato crop. Most of this work is done on the share basis by Italians and Albanians. It is expected that there will be a keen demand for pulp as stocks are said to be sold out.

#### Packing Shed Turns Corner.

For the first time since the packing shed has been functioning as Fresh Fruits (Shepparton) Ltd., it has shown a profit, a small one certainly, but a step in the right direction.

The company has really been deserving of greater consideration at the hands of growers, but fruitgrowing is an industry, in which soft fruits cannot stand much handling if they are to reach their destination

#### OTHER CANNED FRUITS TO ENGLAND.

#### Opposition Australia Meets.

As showing whence Britain draws her supplies of canned fruits, a comparison is taken from the latest report received from the Imperial Economic Committee in London. Above will be seen some figures representing imports into Britain which showed an appreciable increase in 1937.

Canada landed 32,200 cases in the four weeks ending March 12, an increase of 73 per cent. over a similar period in 1937 and 28 per cent. in the first three months of this year. Apples and Pears comprised the largest individual varieties.

Malaya.—In the same period Malaya landed 198,532 cases canned Pineapples in Britain.

U.S.A.—From July, 1937, to January, 1938, U.S.A. supplied to Britain 6,307 tons canned Apricots, 15,614 tons Peaches, 15,832 tons Pears,

with the minimum of bruises, hence they are best packed in the orchard.

But where citrus fruits and Pears are concerned, the packing shed, with its facilities for washing, cleaning and grading, in accordance with the official requirements is peculiarly well equipped to handle these fruits, and so save individual growers the necessity of installing costly plants for treatment.

A trip through the Shepparton orchards reveal that Oranges are grown to a greater extent than might be expected; and the natural soil disabilities are being offset by greater technical skill in the application of suitable manures to produce sweeter Oranges with less rind, than was the case in the early stages of citrus development.

It is not to be expected that this district will extend its citrus developments to any great degree, since its ability to grow the best Peaches, Apricots and Pears with the canneries to handle those varieties to such advantage places the district on an enviable position, but the production of a Winter crop increases the stability and adds to the variety of the district's primary industries, which after all, are more comprehensive than any other area of similar proportions in the Commonwealth.

Shepparton is to celebrate its centenary in October, when it is proposed to line the streets with rows of flowering Peach trees. The growers are to supply the trees, while willing hands for weeks past have been making the blooms, which are to be dipped in wax to prevent the weather spoiling the effect, and the cannery is to provide the boxes in which to place the trees. This is a novel idea in advertising what the Peach tree has done for the Goulburn Valley, and should have a beautiful decorative effect.

New stationary spray plants are being installed.

Mr. W. Young has returned from abroad: the district will benefit through his appreciated efforts.

#### BRITAIN USING MORE CANNED FRUIT.

#### 22 per Cent. More than 1937.

The Imperial Economic Committee, London, advises that during the four weeks ending March 26, Britain accepted 1,191,900 cases of canned fruit, an increase of 527,400 cases over the preceding four weeks and 22 per cent. more than in the same period of 1937. The bulk of receipts represented arrivals of Peaches, Pears and Oranges, though Apples, Apricots and Pineapples also increased.

Imports of fruit pulp also increased over the corresponding period in 1937 to the extent of 9 per cent. Tomato products decreased by 87 per cent. below receipts in 1937.

#### AUSTRALIAN CANNED FRUITS.

#### Views of Mr. W. Young.

The need for better presentation of Australian fruit for sale in the London market was stressed by Mr. W. Young, at a dinner given in his honor by the Shepparton Irrigators' Association. The result of the delegation, of which Mr. Young was part, was dependent largely on the trade agreement between England and the United States. This trade agreement, while aiming at freer trade, was also of a political nature, hence the difficulty of the delegation's task. Every assistance was given them by Australian Ministers in London and by Mr. Bruce, the High Commissioner.

The London fruit market had a limit, continued Mr. Young, and with fruit arriving from Japan, Argentina, South Africa, Chile, and U.S.A., the time was coming when Australia would have to take away the trade from some of these countries.

#### CANNED FRUIT EXPORT.

FIGURES released by the Canned Fruits Control Board show that from the beginning of the season (January 1) to July 31, exports of canned Apricots from Australia amounted to 160,413 cases on the basis of two dozen 30 oz. cans a case, compared with 88,776 cases in the corresponding period of 1937. Included in this amount was 142,313 cases (72,428) cases in 1937) to the United Kingdom.

Canned Peaches exported were 108,329 cases higher at 667,566 cases, of which 616,824 cases (487,957 cases) were taken by Britain. A decrease of 142,696 cases to 418,423 cases took place in canned Pear exports, shipments to the United Kingdom declining from 544,107 cases to 410,832 cases.

The following table shows exports of canned fruits (excluding fruit salad and Pineapples) to various destinations from January 1 to July 31:

Country.	Apricots. Cases.	Peaches. Cases.	Pears. Cases.
U.K. . . .	142,313	616,824	410,332
N.Z. . . .	10,559	26,400	1,998
Canada . . .	5,188	18,478	1,276
East . . . .	1,771	4,715	3,301
Misc. . . .	632	1,149	1,516
Total . . .	160,413	667,566	418,423

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is widely recognised, and its superiority on many soils which have a natural acidity has been clearly demonstrated.

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All the nitrogen is in the nitrate form immediately available to the plant without change.

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## SPRAYING GUIDE.

## For Fruit Pest and Disease Control.

# Fruit Trees

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# Fruit Trees

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Of the measures used in the control of diseases and insect pests of plants, spraying is undoubtedly the most important, but indiscriminate spraying is useless—the first step in plant troubles as in human ones is diagnosis. Insecticides, as a rule, are of no use against fungous diseases, nor are fungicides generally of use against insects. Effective spraying depends on various things, but it demands in the first place some knowledge of the principles of spraying—why, for instance, arsenate of lead may be used effectively against codling moth but not against woolly aphids, both of them insects which attack Apples, and why spraying with Bordeaux mixture for Peach leaf curl must not be left until the trouble appears.

A helpful departmental booklet on this subject has just been issued. This publication contains not only a concise statement on the "A, B, C" of spraying, but also a spraying chart, from which the fruitgrower may see just when and with what to spray for the various diseases and pests to which fruit trees are susceptible. The booklet is obtainable free on application to the Department of Agriculture, Box 36a, G.P.O., Sydney.

## RUBBER SAVES TREES.

Using specially treated rubber, tree surgeons in the Eastern States are prolonging the lives of prize fruit bearers. Practices similar to those used in human surgery are employed by the men ridding trees of disease.

First the affected area is located by "sounding" the tree with a special instrument.

After the infected area has been cleaned of decayed matter, it is filled with the rubber blocks much in the fashion of a dentist filling a tooth cavity. The wound is sealed, and in time the bark grows completely over the incision, leaving only a small scar.

Isaac had a lovely new blind up outside his shop. "That's a beautiful blind you have, Isaac," said his neighbour Moses. "Did it cost you much?" "Nothing at all," answered Isaac, "I put a box on my counter marked 'For the Blind' and soon got the money for it!"

## Nutrition Committee's Report

THE Australian Advisory Council on Nutrition has issued its report for 1938. It is stated that considerable malnutrition exists among children in both town and country, mainly due to a faulty selection of diets. The need for more milk is expressed, also the greater consumption of natural foods. People generally are not consuming enough fruits or vegetables, particularly raw fruits.

This report comes as a welcome addition to similar reports from Nutrition Committees in other parts of the world, and strongly supports Health Weeks and other activities of the Australian Health Council.

The fruit industry has a wonderful story to tell. The information now available from medical authorities all over the world is capable of being used most effectively in increasing the consumption of these marvellous products. One doubts if even the fruit producers know the inherent value of their products.

By better technique, better quality fruit is constantly being produced and an enlightened public will surely seek such. Nevertheless, the duty remains for fruit producers in their own interests to carry on educational propaganda to increase fruit consumption. In the doing of this the benefits will be mutual—better returns to the producers and better health to the people. What a splendid combination!

## PATENTS

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MELBOURNE.

## "HILLMAN" ORCHARD STRIP PLOW

## Double Furrow

A sturdy, strong plow equipped with reversible discs to enable the operator to plow up to, or away from the trees. Operated by a single lever and with nothing to catch branches of trees. To facilitate the movement of the plow around the orchard the discs are movable and lift clear of the ground.

INSPECT LATEST MACHINES AT ROYAL MELBOURNE SHOW STAND IN CARRIAGE PAVILION.

Further particulars apply . . .

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Two medium horses can work this machine all day without tiring. A machine may be obtained for a trial at any time.

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## GRUBBING?

Previous experience had convinced me that to be really efficient a grubbing machine should have ample power and ropes that will meet the heavy demands required of them.

I found that shovel and axe work is very costly either by itself or in conjunction with a machine. The machine that offered these features with a host of others, was THE "MONKEY" GRUBBER.

It gave me the power of 260 pairs of hands in a simple and compact form; the lever is short, so that I am able to stand firm-footed and get the full stroke. There are two speeds in the machine, as well as an automatic release that allows me to let off a strain, or as the machine will work in any position, it comes in for all jobs that would require a chain block. It is taken to the job on a pair of wheels like a barn truck, and is rigged for work in a few minutes. The ropes are in lengths that I find easy to handle, and each one is fitted with hook and loop couplings, so simple and absolutely IT for effectiveness. The makers have included a sturdy snatch block with a novel method of securing to the ropes, and also a fine type of firm gripping rope shortener. The latter makes it very easy to accommodate the lengths of rope to the tree or stump being pulled, and is quickly released from the rope. The combination of so many time and labor saving features makes the "Monkey" Grubber a superior grubbing outfit.

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Leading Stores and  
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West Australia.

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## TUNG OIL.

## New Industry in N.S.W.

For the milling and marketing of crops of Tung nuts produced on the coastal belts of N.S.W. and Queensland, a factory, the first of its kind in Australia has been established at Mascot, N.S.W. The factory, which will be operated by Tung Oil Mills Ltd., covers about 4,000 square feet, with additional space for the storage of many tons of Tung nuts.

This factory will undertake the first commercial production of Tung oil in any part of the Empire. Machinery for dealing with the product has been imported from Germany and England.

# Export & Commercial News

## Southern Railways Australian Agent Tendered Luncheon in London

On July 14, at the Savoy Hotel, Mr. H. W. Bevan was entertained at a luncheon to mark his visit to London. Since 1935, Mr. Bevan has been agent in Australia and New Zealand for the Southern Railway. The chairman of the Southern Railway, Mr. Robert Holland-Martin, presided, and was supported by:—Messrs. Gilbert S. Szlumper (general manager), J. B. Elliot (assistant general manager), E. J. Missenden (traffic manager), R. M. T. Richards (assistant traffic manager), R. P. Biddle (docks and marine manager), E. F. Bone (assistant to docks and marine manager), E. F. E. Livesey (development officer), and F. H. Marshall (goods agent, Nine Elms).

In welcoming the guests, Mr. Holland-Martin said that at Southampton the company had built up a great Empire port, inasmuch as 60 per cent. of its trade was within the Empire, and they hoped that the percentage in future would be even more; they were determined that Southampton should give the utmost service to all parts of the Empire, and particularly the Antipodes.

Sir Earle Page, Minister for Commerce, Commonwealth Government, who responded for the guests, said that the satisfactory results accruing from the railway ownership of ports in the country convinced him of the advantages of such a system. He felt that the whole apparatus of transport—roads, railways, ports, and ship-

ping—should be linked together in the strongest possible manner. As great exporters of frozen meat the people of Australia were particularly interested in Southampton because of the 1,700,000 cu. ft. of cold storage accommodation provided there. He regarded the equipment at that port as an asset not only to Britain, but to the Empire and concluded by congratulating the Southern Railway on its service and organisation.

Mr. Gilbert S. Szlumper said that through Southampton in 1936, the company handled £64,000,000 worth of traffic, the fourth largest figure in the United Kingdom after London, Liverpool, and Hull. He paid tribute to the satisfactory results of Mr. Bevan's efforts on behalf of his company.

Mr. Bevan, replying, expressed his gratitude for the great assistance rendered him in his work first by Mr. R. M. T. Richards, the Development Officer at the time of his appointment, and afterwards by Mr. E. F. E. Livesey, who at present holds that appointment.

Among the guests present were:—The Rt. Hon. Sir Earle Page, G.C.M.G., M.P., Minister of Commerce, Commonwealth Government; Agent Generals and Trade Commissioners from the various States of the Commonwealth and New Zealand; representatives of shipping companies, fruit, butter, meat and dairying industries, and many others.

## Market for Vegetables

### Trial Shipments to the East

### Cauliflowers, Celery, Lettuce

THE N.S.W. Department of Agriculture recently sent two trial shipments of vegetables to Singapore. The results show that all the vegetables—Lettuce, Cauliflowers and Celery—arrived in fair to satisfactory condition. Experts of the Department consider that an excellent market for Australian vegetables may be developed in Eastern countries.

Commenting on the results of the shipments, Mr. John Douglass, special agricultural instructor, said:—

"Undoubtedly we can grow these vegetables of the right size and quality without much difficulty. Providing they are correctly packed and transported under good refrigeration conditions, we can look forward to a further opening for vegetables in these quarters."

The vegetables in demand in eastern countries usually belong to the salad class, and are invariably consumed by the white population, or by well-to-do Chinese. The cost of sending them from Australia is heavy, and the market is fastidious, so that high quality is essential.

An official of an Eastern company, who was recently in Sydney, was taken through the vegetable growing areas by Mr. Douglass. As a result of discussions with him it was ascertained that the vegetables must be of very high quality, and, in the case of Celery and Cauliflowers, rather small. For example, a trimmed Cauliflower weighing about 2 lb. is considered ideal, and the American heart Celery type is the only Celery in demand in Eastern cities. The long type, though saleable, is not popular, mainly because of lack of quality and the large size of the individual heads.

#### Market Requirements.

The vegetables sent to Singapore were packed in crates giving plenty of ventilation, the method of packing being similar to that observed by Mr. Douglass in California.

The report on the shipments stated that the Cauliflower heads weighed 2½ lb. each and were not trimmed back enough. The heads were wrapped separately in parchment paper.

The Celery was of the long South Australian type. It was described as far too big and coarse for the trade. The green leaves had not been trimmed back enough. The Celery heads, the report added, should be no more than 1½ lb. each. Mr. Douglass said it was apparent from the description that the Eastern market had been supplied from California with American heart Celery, a small, short, very compact type of the highest quality. It was unfortunate that these varieties were so disease susceptible in N.S.W. It might be some time before a type could be developed here to suit the Eastern trade.

The Lettuce was received in fair condition. The American method of packing, however, was considered faulty. Check lots of Lettuce stored under cold conditions in Sydney were unpacked here and turned out in fairly good condition. They were sound, and though slightly shrunken, were quite edible.

"The market demand for Lettuce in the East is also based on American goods," Mr. Douglass added, "so that local growers must concentrate on the American heart Lettuce if they wish to compete in these Eastern markets. Only the solid hearts of the Lettuce are shipped the outer leaves being stripped off."

## APPLE AND PEAR EXPORT CONTROL.

Reports Indicate the Bill Will be Proceeded With.

A report published in the press from the Canberra correspondents of several Australian newspapers, was to the effect that despite opposition from a section of the Tasmanian industry, the Federal Ministry is almost certain to approve the passage of legislation to regulate the marketing overseas of Apples and Pears.

Following his visit to Tasmania, where he discussed marketing problems with the growers, the Acting Minister for Commerce (Mr. Cameron) presented a report to the Federal Cabinet. This will probably lead to the drafting of a Bill to create an export control board for the industry with power to regulate shipments abroad and to fix export standards.

## APPLES IN U.K.

The Commonwealth Department of Commerce advises, under date August 10, having received a cablegram in the following terms from the High Commissioner's Office, London:—

"Fruit. Week ending August 6. 'Tacoma Star' discharging Liverpool Monday. Arrangements made stack fruit each compartment separately pending survey. London supplies Sturmers this vessel selling for various purposes at 1/-, 9/-, per case but large quantities condemned. Brown Heart also Granny Smith, French Crabs, Scarlets. 'Port Campbell' discharging Hull Monday. 'Dunedin Star' with transhipment 'City of Brisbane' discharging London Monday. Much concerned London trade results double freight demand by City line controlling deliveries. Market Apples generally affected by 'Tacoma Star,' but good red varieties to 14/-, Granny Smith 16/-."

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London is reached by express freight trains in three hours from Southampton—All fruit unloaded in Southampton to-day will be at Covent Garden, Spitalfields, or Borough Market for early morning market to-morrow, with days saved as against fruit discharged by ships calling at Continental and other outports first. The slight additional cost is altogether outweighed by the tremendous advantages of days saved.

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**Export of Oranges to N.Z.****Marking of Cases on Both Ends.**

The N.S.W. Minister for Agriculture (Hon. A. D. Reid, M.L.A.) directs attention to the terms of advice received by the Department of Commerce, Canberra, with regard to the export of Oranges to New Zealand.

The Director of Internal Marketing in New Zealand, it is stated, desires to be placed on both ends of the boxes in prominent characters, a letter to indicate the name of the exporter and numerals indicating the count. These markings are to be surrounded by the design of a triangle in the case of "Special" grade, a circle for "Standard" grade, and a square for "Good"

grade. It is understood that the quantities of each grade and count are to be shown separately on the consignment notes.

The count, if applied in accordance with the above, may be regarded as sufficient for the purposes of the Exports (Fresh Fruit) Regulations, which require the number of the

Oranges contained in each box to appear in the trade description.

It is understood that the N.Z. authorities desired no other marking except that referred to in paragraph 1 above to be applied to the boxes, but in consequence of representations made by the Department of Commerce it has been decided to permit the trade description, as required under the Exports (Fresh Fruit) Regulations, to be applied, but the special marking as referred to above must appear on both ends of the box.

It is essential that the trade description should be applied to one end of the box, but should difficulty arise in giving effect to the requirements of the N.Z. Government, the Department of Commerce should be informed immediately.



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## Fruit Marketing in Sydney

Reduction of Agents Recommended ::  
Elimination of Poor Quality Fruit and Unwanted Varieties.

Evidence by Mr. L. J. Jenkins.

**T**HAT MEASURES should be taken to prevent non-commercial fruit from spoiling the market for the grower of better fruit was recently advocated before the Fruit Industry Commissioner (Mr. McCulloch, S.M.) by Mr. L. J. Jenkins, fruit agent, Sydney, and President of the N.S.W. Chamber of Fruit and Vegetable Industries.

Mr. Jenkins stated that a reduction in the number of Sydney agents in the market would enable a better control over values and a better standardised market. The intense competition amongst agents would be eased by the removal of "weak sellers." Co-existent with haphazard selling methods were the problems of poor quality and excessive number of varieties. Despite the disadvantages which existed, agents had developed with their own money every possible market, yet many people were ignorant of the service rendered by agents, and he deplored propaganda which made the name "agent" anathema and kept grower and agent apart. The closest possible contact was needed. If the ruling price was 5/6 and the growers received 4/-, it was usually because the fruit was inferior.

The production of Apples and Pears in Queensland should not be extended. These fruits could be produced cheaper elsewhere; other States could reciprocate by absorbing greater quantities of tropical fruits.

Continuing, Mr. Jenkins stated that 1937 was one of the worst years ever experienced with regard to "ill-conditioned" Apples. Fully 80 per cent. of all the consignments from Tasmania and Victoria were in a faulty condition. Extensive losses were incurred. The chief faults were skin blemishes, loose packing, faulty grading and sizing, mixed stages of maturity, bruising, bad preparation, and out of season marketing. Unsuitable varieties should be worked over as soon as possible.

Mr. Jenkins also claimed that both growers and agents had suffered disastrous losses through the use of unsatisfactory "returnable" cases. He considered that if all fruit was packed in softwood Canadian cases and attractively presented, the grower would be more than amply compensated for the extra cost. The gin case had many faults, and had been responsible for the spread of pests, such as moth and fly.

### Tasmanian Apples in Sydney.

The Tasmanian Government representative, Mr. Herbert McKay, stated he had consistently directed public attention to defects in certain Tasmanian packs, chiefly from smaller growers who had less than two acres of orchard.

The statement made before the Commission that all outstanding packs from Tasmania could be counted on two hands was ridiculous. He could compile a substantial list of well packed brands. There had been a vast improvement in the "get-up" and grading of the Tasmanian pack in the last three years. The Tasmanian Government had conducted an intensive campaign in an endeavour to raise standards.

More than a million cases had already been shipped from Tasmania to Sydney this season. Only a few hundred of these million cases had been repacked this season by order of the Import and Export Branch.

### PLUMS FOR EXPORT.

Mr. R. L. Greenwood, of Merrigum, Vic., has been making enquiries concerning the growing of Plums for export. He exported Japanese Plums for two years with good results, but has recently been unsuccessful with them. The question is raised as to whether two year old trees—Jeffersons—are worth keeping. There is no market for the fruit in Australia, and Plum export is difficult. In the 1938 season the first Plum boat was too late.

This subject was discussed at some length at the August meeting of the Victorian Fruit Marketing Association.

Mr. W. P. Hutchinson stated he had exported Plums for a number of years with varying success; although he picked and forwarded under what were apparently identical conditions, one year things appeared to be all right and the next they were all wrong. A great deal depended upon the season, and much more information was needed. With the exception of the 1938 season he had never exported Plums after the first week in February, and this was generally borne out by the condition when opened. In his opinion Plums should be finished long before Pears start. Under present conditions he could not see how Plum export could expand to any considerable extent, although it was most desirable that it should.

Mr. J. J. Tully said he was greatly impressed by the investigational work carried on by Mr. G. B. Tindale, Cool Storage Research Officer at the Victoria Dock, Melbourne. The variety known as Coles Golden Gage was delicious, even after ten weeks' storage. The fruit was stored at 32 deg. for two weeks and then brought up to 46 deg.

The view was expressed that sufficient Plums would be obtainable for an experimental shipment next season.

A Committee consisting of Messrs. W. P. Hutchinson, J. J. Tully and J. B. Mills (with power to add) was appointed to go into all details regarding Plum shipments.

It was decided to place the item, "Export of Plums" on the agenda paper for the Sydney meeting of the Apple and Pear Council, and to write to the Department for the latest report from Mr. Tindale for the information of delegates.

### N.Z. POTATO BAN.

The Federal Government will not permit New Zealand Potatoes to enter Australia, according to advice received by the New South Wales Chamber of Fruit and Vegetable Industries.

The chamber recently petitioned the Government to remove the embargo, because of the shortage and high cost of Potatoes in Sydney.

## Apple and Pear Export Control

Earnest Advocacy by Acting Minister For Commerce.

"Control Will be in the Hands of the Chosen Representatives of the Industry, Clothed with Statutory Authority."

DURING his recent visits to several of the Australian States, the Acting Minister for Commerce (Mr. Cameron) has earnestly placed before producers the need for legislation to safeguard and develop the export trade in Apples and Pears. The reason for the Government's proposals to introduce the Apple and Pear Export Organisation Act, stated the Minister, was the generally unsatisfactory position of the Apple and Pear industry, and the fact that for several years past financial assistance from the Government had been sought. Marketing legislation would give the Control Board the necessary authority to regulate exports under licence. The powers in the draft Bill were practically the same as those included in the Acts of the five Boards already in existence, which Boards were working satisfactorily. Only a Control Board with such authority could deal effectively with quotas and the regulating



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Southern Queensland Tomato Growers' Association.

North Coast Tomato Growers' Association.

References:

Bank of New South Wales, Haymarket, Sydney.

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of the sales in the United Kingdom. Better facilities would be presented for developing new markets abroad and advising the Government as to trade treaties. Trouble had occurred in the wine industry through the planting of more Grapes after 1928, thus causing over-production and unpayable prices. Organisation and control through legislation had restored the industry to a profitable level.

"The desire of the Commonwealth Government," concluded the Minister, "is to give every assistance it can. The Government believed, and is supported by the experience of other boards that the many problems that face Australia's primary industries are best handled by the chosen representatives of those industries themselves clothed with the necessary statutory authority."

#### TASMANIAN MINISTER SUPPORTS BILL.

Speaking at Woodbridge, Tasmania, in support of the Export Control Bill, the Tasmanian Minister for Agriculture, Mr. R. Cosgrove, said the Bill was designed to give orchardists control of their own industry. Of the eight proposals submitted by the State Fruit Board, the Acting Minister of Commerce had stated he had given away either wholly or in part on seven, but the machinery did not exist for taking plebiscite of growers at the end of three years as desired by the Tasmanian representatives. He was prepared for the matter to be reviewed periodically by the representatives of the orchardists in each State; shipping conditions could be improved by having a Board. He felt if an export control board had been

in existence when orders had been received in Tasmania for fruit for the Continent, the fruit could have been carried in foreign ships.

#### Interstate Trade.

Regarding interstate trade, continued Mr. Cosgrove, a recent High Court decision, Hartley v. Walshe, had now clarified the situation, and there appeared to be now no difficulty in ensuring only high standard fruit being exported interstate.

In conclusion, the Minister stated that the Tasmanian Government had promised to provide £3,000 on a pound for pound basis to develop new markets in the East. He understood that the Federal Government was not prepared to recommend the continuance of bounties to the fruit industry unless it took steps to become organised on an official basis.

#### The Greatest Industry

Home-craft as a Factor in Prosperous Farm Life.

"The greatest industry in which woman is engaged is home-making—in the number of persons employed, it is ahead of all occupations," said Miss M. D. Kidd, Staff Inspector of Domestic Science Schools, in an address at a recent conference of the New South Wales Agricultural Bureau. "Home-making is a trade for every woman, and the demand is universal. The home is still 'woman's sphere,' and probably for most women always will be so."

The home-maker "outback" is beset with many difficulties, and co-operation for the solution of these difficulties is an important side of the activities of the Bureau. It has been said that, whilst the farmer's success in his calling depends largely on his knowledge of cultural methods, on his ability to make the best use of what materials he has available, and on the economical distribution of his money, time and labor, it depends also, and to no small extent, on the efficiency of the home-craft of the woman on the farm. An inefficiently run, badly equipped home is not likely to be an incentive to the man to put his best efforts into his work out of doors.

Efficient home-craft requires competence in the buying of food and clothes and the performance of household duties, but it requires also a knowledge of such matters as suitable accommodation for the family, the safeguarding of their health, provision for their recreation and social intercourse, and all these other things which come under the indefinite classification of "management of the home."

That the Bureau represents a movement of value to the woman on the land was evident from the large number of women present at the annual State conference, held at Hawkesbury Agricultural College last month. Full details of the aims and constitution of the Bureau are given in a pamphlet obtainable from the Department of Agriculture, Box 36a, G.P.O., Sydney.

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Tasmania: State Fruit Advisory Board.  
New South Wales: Griffith Producers' Co-op. Co. Ltd.  
Barlow Packing House Co-op. Soc. Ltd.

Established 1911.

## Household Hints

The strain of buttons on woollen coats will often result in a hole which could be entirely avoided if a linen one the same size were sewn on the back, using, of course, the same thread for the two.

#### TOMATO WITH TOUGHER SKIN

A Tomato with a tougher skin is being cultivated at Portland, Victoria. The advantages claimed for it are that it can be handled more freely without danger of being damaged, and that it will keep longer. For these reasons this Tomato appeals to shopkeepers, as it lends itself to window displays and does not deteriorate so rapidly when kept in the shop. Whether it will be popular with the public remains to be proved; there is a possibility that the tougher skin may not be so acceptable for table and culinary purposes.

A copper kettle tarnished with gas fumes can be restored by rubbing with a cloth moistened with ammonia and sprinkled with your usual cleaning agent.

Old powder puffs make excellent pads for cleaning silver, brass, etc. They hold liquid, are easy to handle, and save dusters.

Five or six lumps of sugar dissolved in a little water and added to the last rinsing water for organdies and voile frocks will make them beautifully crisp when ironed.

It is a good idea to shrink new flannel a little before cutting into garments, by moving a hot iron over a damped cloth covering the flannel.

Grease spots should be removed from fabrics as quickly as possible; put blotting-paper under the marks to absorb the grease while treating with benzine.

# Market Notes & Prices

## FRUIT PRICES IN THE SYDNEY MARKET.

Survey of Operations from July 25 to August 25, 1938.

By L. T. Pearce, Market Representative of the Fruitgrowers' Federation of N.S.W.

THE wet weather which commenced about August 20 and continued for the following week without cessation, adversely affected the fruit markets.

At the Darling Harbour Goods Yard the conditions for unloading and delivery of fruit have been appalling. Overhead cover is totally inadequate; large quantities of fruit damaged.

At interstate wharves, laborers declined to unload in the rain, and Tasmanian fruit expected by country buyers on the Tuesday did not reach the market until late on Wednesday.

**Apples.**—Chief supplies now arriving from Tasmania, Democrats having displaced Scarlets as to heaviest quantities of one variety. Rather too many Democrats are over 3 in. Croftons, Cleos, Romes and Grannies experienced good demand. Sturmers unwanted; French Crab improved slightly; a few Jons. and Geeveston Fanny still coming forward. N.S.W. Grannies steady at 10/- to 13/-. Del. and Buncombe bringing good prices, but demand limited at comparatively high prices. Prices: Fancy and Good Grades—Buncombe (N.S.W.), 6/- to 9/- per bushel; Crof. (Tas.), 6/- to 9/-, few 10/-; Cleo. (Tas.), 6/- to 8/-, few 10/-; Del. (N.S.W.), 9/- to 14/-; E.F. 15/-, few higher; Del. (Tas.), 6/- to 11/-; Demo. (Tas. and N.S.W.), 4/6 to 7/-, few 8/-; F. Crab. (Tas.), 4/- to 6/6, few 8/-; Geeveston Fanny (Tas.), 5/- to 7/-; Granny (Tas. to 11/-), N.S.W. and S.A., 7/- to 12/-, shipping higher, E.F. 13/-, good 6/- to 11/-; Jon. (Tas. and S.A.), 7/- to 9/-, few 10/-; Rome (Tas. to 9/-), N.S.W. and S.A., 7/- to 9/-, E.F. to 10/-; Scarlet (Tas.), 4/6 to 8/-; Sturmer (Tas.), 4/- to 5/6, few 6/- E.F. and shipping higher. "D" grade lower.

**Pears.**—Packham's most plentiful, most buyers requesting counts 165 to 180 for sale at 1d., although these sizes are becoming less plentiful. A few Winter Cole are still about, mostly from Tas. Jos. in large sizes not popular (keeping quality not altogether satisfactory). Prices: Fancy and Good Grades—B.B. (Vic. and N.S.W.), 6/- to 8/6 per bushel; G. Moreau (Tas.), 7/- to 8/-; Jos. (N.S.W., Tas. and Vic.), 7/- to 10/-, extra fancy to 13/-; Packham's (Tas. to 11/-), N.S.W., Vic., 7/- to 12/-, few 13/-; W. Cole (N.S.W. and Tas.), 7/- to 13/-; W. Nelis (N.S.W., Tas. and Vic.), 6/- to 11/-, Ex. F. and shipping higher. "D" grade lower.

**Bananas.**—Arrivals about 7,000 to 10,000 trop. cases per week; quantities increasing from Q'land. Many N.S.W. Bananas are small; difficult to obtain good prices. Prices according to the Banana Marketing Board of N.S.W.: Regulation graded, first quality fruit, six, seven, eight and nine inch, 11/- to 19/- per trop. case.

### Citrus Fruits.

**Grapefruit.**—No oversupply for some time, well developed Wheeny having good demand, while Marsh Seedless has also sold satisfactorily when fruit heavy and not too thick skinned. Prices: Local, 4/- to 7/-, few 8/- to 10/- per bush.; Inland, 5/- to 7/-, few to 9/- bush.; 9/- to 11/- per two bush. crates.

**Lemons.**—Market practically unchanged, only a few sales at higher

levels since wet weather commenced. Processors reported to be operating with juice and peel, this business mostly being direct with the grower or the grower organisation. Prices: Special and Standard—Local, counts 125 to 216, 4/- to 5/-, few 7/- per bush.; smaller, 2/- to 4/-; plain, 2/- to 2/6; inland, 5/- to 6/-, few 7/-.

**Oranges, Navels.**—Slightly less fruit from Coastal and Metropolitan areas since bulk of Hawkesbury crop marketed. Values, however have not shown improvement (until rain reduced supplies) owing to supplies from the M.I.A. increasing. It will be interesting to note whether the continued rain causes growers to hasten marketing. Prices: Navels, N.S.W., standard grade, per bush.—Counts 72 to 88, local 5/6 to 6/6, special 7/-, inland 5/6 to 6/6, special 8/-; 96 to 113, local 6/- to 6/6, special 7/- to 8/-, inland 5/6 to 6/6, special 8/6; 125 to 138, local 6/- to 6/6, special 7/- to 8/-; inland 5/6 to 6/6, special 8/6; 150 to 175, local 5/6 to 6/6, special 6/-, inland 5/6 to 6/6; 188 to 216, local 5/- to 5/6, special 5/6, inland 5/-; smaller, local 4/- to 4/6. Few special brands 7/- to 9/- per bush. Inland two bush. crates, 10/- to 12/-, few 13/-; small (500), from 6/-; Val. (coastal), 2/- to 3/6 per bushel. Other Oranges, N.S.W., 2/- to 3/-.

**Mandarins.**—Have been in much lighter supply during the past two or three weeks; unfortunately many have been puffy and over-matured. It is not known what quantity has still to be marketed from the Hills District, where the fruit is usually held till late in the season. Prices: N.S.W. Emperor, 3/- to 7/-, few 9/-; inferior, from 2/- per bushel.

**Passionfruit.**—Special quality fruit has been at a lower level than for some time, around 6/- to 8/-; poorer quality at times difficult to move. Prices: N.S.W., 2/6 to 5/-, special to 8/- per half bush.

**Papaws (Q'land).**—Undue haste in forwarding before maturity has hampered sellers in obtaining the highest price. Breakdown occurred before color could develop. Prices: 6/- to 10/-, few higher per trop. case.

**Pineapples (Q'land and N.S.W.).**—Supplies regular and values maintained at 7/- to 10/-, with a few higher per trop. case.

**Strawberries (Q'land).**—This fruit has been more plentiful than for some years, and has generally been of excellent quality. Extremely cold weather on occasions prevented high values, latterly wet weather prevented barrowmen from operating, thus clearance became difficult. Prices: 1/6 to 4/6 per tray; 4/- to 9/- per dozen boxes.

**Tomatoes.**—N.S.W. glasshouse is steadily increasing in quantity, but, poor reception has been accorded this latterly, due to weather conditions. Queensland supplies jumped from just over 17,000 half bushel cases to approximately 25,000, the increased arrivals coinciding with wet weather. Values this week in consequence have averaged around 4/6, this price being 1/- to 2/- lower than the values previously. Prices: Q'land, green 2/6 to 5/6, colored to 6/6 per half case; N.S.W., glasshouse 7/- to 9/-, hothouse to 10/- per half case; repacked, 5/- to 8/- per half case.

## QUEENSLAND.

**Brisbane (20/8/38).**—Messrs. Clark & Jesser report as follows: Since our last report the supplies of Apples coming forward have eased off and values have improved. Ruling prices at present are:—Apples: Jon., 2/-, 2/-, 10/- to 11/-, smaller sizes 8/- to 9/-; Del., 10/- to 11/-; R.B., 8/- to 9/-; other varieties of colored Apples, 4/- to 6/-, selected to 8/-, according

8/- to 9/-; Sturmers, 7/6 to 8/-; G. Smiths, 12/- to 13/-; Pears: W.C. and Jos., 13/- to 14/-, very small sizes in Pears are in poor demand. Oranges: Common, 5/- to 5/6; Navels, 7/- to 7/6. Mandarins: Large 8/- to 9/-; small, 5/- to 6/-. Lemons: 5/- to 7/-. Grapefruit: 5/- to 6/-. Tomatoes: 8/- to 9/-. Bananas: Green, 15/- to 18/- case. Pinapples: 5/- to 6/-. case.

**Brisbane.**—Messrs. W. Arkell write under date August 29 as follows:—We beg to advise the following sales this week:—Apples: Jon., 9/- to 11/-; Del. and Cleos, 9/- to 12/-; G.S., 10/- to 13/-; S.T.P., 6/- to 8/-; Dem., 6/- to 9/-; F.C. (green), 6/- to 8/-; various, 5/- to 8/-. Pears: W.C., 9/- to 14/-. Oranges: 4/- to 5/-. Navels, 5/- to 8/-. Lemons: 4/- to 6/-. The market has been quiet and we anticipate a slight fall this week owing to heavier supplies, but it is our opinion that choice fruit will sell freely and the market recover quickly.

## VICTORIA.

**Melbourne (1/9/38).**—Quotations (bushel case, unless stated):—Apples: Eating, Del., 5/- to 9/-, few higher; Jons., 5/- to 8/-, few higher; other varieties, 4/6 to 7/6. Apples: Cooking, 4/- to 7/-, few special higher. Oranges: Navel, average standards, 4/- to 6/-, selected to 8/-, according

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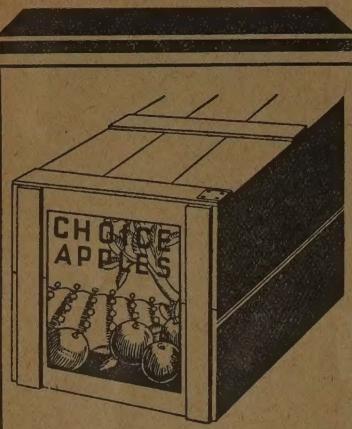
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to counts; few specially selected to 9/-; Poormans and Sevilles, 4/6 to 8/-, few higher; Blood Oranges, 7/- to 9/-, best counts. Lemons: Average standards, 4/- to 6/-, good standards, to 7/-; selected to 8/-. Grapefruit: 4/- to 8/-, few special higher. Mandarins: 4/- to 8/-, selected to 10/-, few special large Emperors to 12/-, few red varieties to 11/- and 12/-. Pears: Culinary, 5/- to 8/-, few higher. Pears: Dessert, 3/6 to 6/-. Papaws: 8/- to 12/- double case. Bananas: Queensland, 6's 10/- to 13/-, 7's 13/- to 15/-, 8's and 9's 15/- to 17/- double case. Pineapples: Queensland, 7/- to 9/- double case, few higher. Passionfruit: 5/- to 10/- half case, few higher. Tomatoes: West Aust., 4/- to 6/- half case, few higher. Tomatoes: S. Aust., 8/- to 10/- half case, few higher. Celery: Adelaide, 8/- to 12/- double case.

#### WESTERN AUSTRALIA.

Perth (26/8/38).—Apples: Dunn's dumps, 7/- to 8/- (plain), 7/6 to 9/- (fancy), 9/- to 10/- (ex. f.); R.B. 8/- to 9/- (fancy), 9/- to 10/- (ex. f.); Yates 8/- to 9/- (plain), 8/6 to 11/6 (fancy), 11/- to 12/- (ex. f.); G. Smith 7/- to 8/-, 8/- to 11/9, 11/- to 12/-; Cleo 8/- to 9/- (fancy), 10/- (ex. f.); Doherty 7/-, 8/- to 9/-, 9/- to 10/-; Del. 9/6 to 12/- (fancy), 12/- to 13/- (ex. f.); Rokewood 7/- to 9/- (fancy), 9/- (ex. f.); Statesman 8/- to 10/- (fancy). Citrus: Oranges, navel, flats 2/- to 7/- (special to 8/-); dumps 3/6 to 8/6 (special to 10/-); Joffa and Val. flats 2/- to 3/6; dumps 3/- to 5/-. Lemons, flats, 1/3 to 5/6 (special 6/-); Mandarins, flats 1/6 to 9/-; Grapefruit, flats, 2/- to 6/-; dumps 6/- to 8/-. Other lines: Tomatoes, ex. Geraldton, 1/6 to 8/-; Passionfruit, 4/- dumps 4/- to 6/-; 1/6 dumps 7/-; Bananas, Carrievon, 12/- to 20/- crate.

#### NEW ZEALAND.

Dunedin: Messrs. Reillys Central Produce Mart Ltd. report under date August 19 as follows:—Business during the week has been quiet. Fair supplies of Apples continue to come forward, and some nice quality Sturmers and Del. are being received ex cool store. Increased supplies of dessert Pears are also being received.

Australian Oranges are meeting with satisfactory sales. The "Wai-taki" arrived during the week with a further shipment of Navel Oranges, approximately 5,000 cases being landed at Dunedin, this quantity including the Oamaru and Timaru allocation. A shipment of Mandarins also came to hand by this boat. The Mandarins in particular were in very fine order, and met with a good enquiry. A small shipment of Queensland Pineapples also netted satisfactory values.

Ripe Bananas have had a better enquiry. A further shipment of Samoan and Niue grown fruit is due ex the "Maui Pomare" about September 1, and should meet with a better demand. N.Z. Lemons are in rather over-supply, only the best packs meeting with a demand.

Prices (Per Case): Cal. Lemons: 75/-; N.Z. Lemons, Keribest, 12/- to 14/-; others, 6/- to 10/-. Oranges: Australian Navel, 16/- to 21/-; Island Oranges, 10/6 to 15/6; Poorman Oranges, 8/6. Mandarins: 22/6. Queensland Pineapples: 20/- to 21/-. Bananas: Ripe, 16/6. Apples: Jon. choice, 6/- to 8/-; Del. 4/- to 8/-; G. Smith, 6/- to 7/-; Winesaps, 7/- to 8/6; Sturmers, 4/6 to 8/-; Tasmas, 6/- to 7/-; cooking Apples, 3/6 to 6/-. Pears: W.N., 8/- to 10/6; B.B., 9/-; cooking Pears, 6/6.

Guest: "Are these eggs fresh?" Hotelkeeper: "Fresh? They ought not by rights to be laid until tomorrow!"

## The Pig Pen

#### INSANITARY PIGGERIES.

##### A Factor in Losses from Disease.

FIGURES collected during the last few years in connection with the Swine Compensation Act show that the percentage of pig carcasses condemned for various reasons has tended to increase, and in an attempt to determine what reasons might lie behind this increase, states the Acting Chief Veterinary Surgeon of the N.S.W. Department of Agriculture, opinions were sought from a large number of country officers on the general care given to the hygiene and feeding of pigs, and to the culling out of sick pigs from piggeries. A majority of officers reporting considered that in their opinion greater care is exercised by pig farmers in the hygiene and feeding of pigs than was once the case, but quite a number considered that there has been practically no change in the last ten years in the direction of improvement in these matters.

It is regrettable if this opinion, which is based on close observation, is correct, since it has for long been recognised that there was much lacking in the application of proper methods of hygiene and proper methods of feeding in the pig industry.

With respect to feeding, the aspect considered was not so much the type of food supplied as the methods by which the food was supplied and whether it was so given to the pigs as to reduce the likelihood of the food being responsible for the presence of disease.

The insanitary condition of many pigsties has frequently been referred to in official publications and statements issued during the last ten years, and there can be no doubt whatever that much of the loss inflicted on the pig industry through the faulty construction of pigsties and the general insanitary conditions of the yards in which they are kept is preventable. In too many cases the food, particularly the milk, which is given to the pigs, is allowed to reach a condition of deterioration before it is fed, which must have an undesirable effect, and it is very often fed in such a way as to lead to contamination from the pigs themselves.

The drainage of many pigsties is far from satisfactory, and too often the pigsties are constructed in such a way that the drainage from one passes through others, and consequently if diseased pigs are present in the first sty the disease may be more or less rapidly conveyed through the other sties.

It is also a fact that frequently inspectors visiting piggeries find that sick pigs are allowed to remain in the sties with healthy animals, and that too little care is given to the desirability of removing sick pigs to an isolation pen and so endeavoring to minimise the amount of infection which takes place.

#### SICK PIGS ARE UNPROFITABLE.

##### Requirements for Good Health.

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3. Frequently and regularly cleaning and disinfecting.
4. Keeping quarters dry, clean and free from draughts.
5. Feeding proper rations.
6. Grazing pigs on clean pasture.

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# Cool Storage of Fruit

## Export of Plums and Peaches

By G. B. Tindale, B.A.Sc., Cool Storage Research Officer, Victorian Department of Agriculture.

THE PRESENT EXPORT TRADE with Plums has been built up almost exclusively with immature fruit. The reason is that mature Plums will not keep sufficiently long at the usual shipping temperature (approximately 32 deg.) to permit their export. If mature Plums are stored for more than a month at 32 deg., most varieties then lose their flavor and become mealy. With further storage at 32 deg. they then develop discoloration of the flesh; at first the flesh is but slightly brown, but later it becomes very dark brown, at which stage the Plum develops a most objectionable taste and smell.

Immature Plums, however, will keep two to three weeks longer at 32 deg. before developing these disorders, hence with the present pre-cooling and shipping period of approximately six weeks there is just sufficient time to land immature Plums overseas before the disorders develop.

However, immature Plums will not ripen satisfactorily after storage. They remain sour and do not develop satisfactory juice or Plum flavor. They are of use for culinary purposes only, and the position to-day is that our export trade with Plums is on the basis of a culinary article only.

As the result of recent experiments, it is now possible to keep mature Plums in cool storage for periods of approximately eleven weeks according to variety. By adopting a certain programme of varying storage temperatures, it is possible to avoid all disorders and if stored beyond the above eleven weeks the Plums merely become overripe.

The method is to store the Plums at 32 deg. for a limited period (approximately one month for most varieties) and then raise the storage temperature to the minimum ripening temperature, i.e., 46 deg., for most varieties.

At this latter temperature the Plums will remain for 6½ weeks (for most varieties), by which time the Plums will have become ripe, but not overripe. Thus the 4½ weeks at 32 deg., plus 6½ weeks at 46 deg., gives a storage life for most varieties of eleven weeks, which, of course, leaves a very big margin of safety for export. Allowing for a pre-cooling period at this end of one fortnight, i.e. time up to loading into the ship, it would then be merely necessary to raise the storage on board ship from 32 deg. to 46 deg. after one fortnight.

It is fortunate that the temperature in England when Victorian Plums arrive there, approximates to 46 deg., so that the ripening process will gradually proceed after the Plums arrive. The Plums could remain for several weeks in England before becoming overripe, while in the meantime no disorders would develop.

The Japanese varieties — Wickson and Satsuma are extremely susceptible to low temperature disorders if stored at 32 deg. and 46 deg. (the present shipping temperature, followed by temperature of 46 deg. on arrival in England). These varieties develop disorders when stored beyond two weeks at 32 deg., and then subsequently at 46 deg. This accounts for the fact that these varieties, when exported, invariably arrive with disorders and their export under present conditions should be discontinued.

By way of extreme contrast, the variety Lawford Gage may be cited. It will withstand 16 weeks at 32 deg. before developing disorders and this

accounts for the fact that this variety carried at 32 deg. invariably arrives in England free from disorders and fetches highest prices.

### Peaches.

Peaches in cool storage behave somewhat similarly to Plums, insofar that they can be stored at 32 deg. for a limited period only, after which they become mealy and lose their flavor, while with further storage at 32 deg. the flesh develops a red or brown discoloration, and the skin develops numerous cracks.

Immature Peaches will store longer than mature Peaches at 32 deg. before developing disorders, but, as immature Peaches fail to develop typical Peach flavor subsequent to storage, the storage of immature Peaches is not recommended.

Various Peach varieties vary considerably so far as their length of

storage life is concerned. Early-maturing Peaches do not store nearly so long as late-maturing Peaches. As the result of storage experiments over several seasons, it has been found that the varieties Smith's, Catherine Anne, and Late Crawford, are outstanding. These varieties can be stored for about two months at 32 deg., and will then ripen with full flavor and lusciousness if ripened at 46 deg. (the optimum ripening temperature), the ripening process taking one week.

As an export proposition it must be remembered that the temperature on arrival in England approximates to 46 deg., so allowing for ripening at this temperature (the ripening period at this temperature being three to four weeks), it would be necessary to raise the storage temperature from 32 deg. to 46 deg. after five weeks. This procedure would permit the Plums and Peaches being shipped together in the same chamber and treated similarly. Allowing for, say, a fortnight at this end until loaded into the ship, in the meantime pre-cooled to 32 deg., the Plums and Peaches should be carried on board ship for the first fortnight at 32 deg.

after which the temperature should be raised to 46 deg. Under this method, whereas most Plum varieties would keep for eleven weeks, these varieties of Peaches (the longest keeping varieties) will store for but eight to nine weeks.

## GRAPE OIL.

### Experiments in Germany.

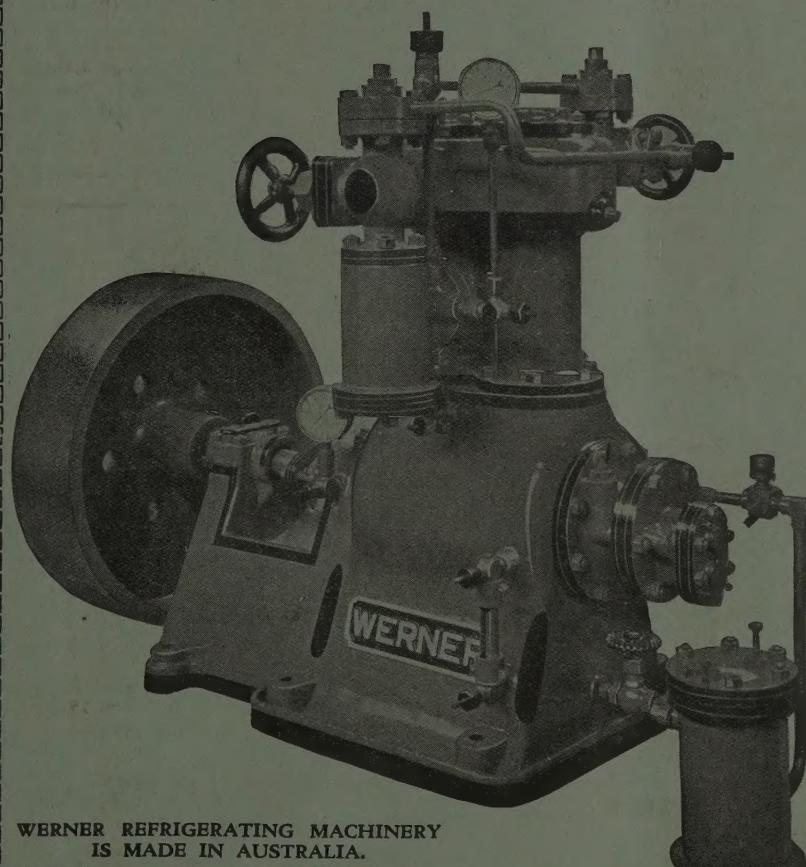
A N ACHIEVEMENT claimed by the German chemists relates to the manufacture of oil from Grape stones.

Experts attached to the Rhineland wine industry have for several months been seeking means of using the stones and skins left after the Grapes have been crushed, and they now announce that oil production has become a commercial possibility.

Already, it is stated, over 40,000 litres of oil have been derived from the stones alone, and as the process is developed it is hoped to produce 1,000,000 litres a year of fine-graded Grape-stone oil.

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# Developing Sales of Apples on the Australian Markets . . .

Need for Concerted Effort and Added Publicity.

## Importance of Cool Storage

**I**N THE RECENTLY issued report of the Imperial Economic Committee it is stated that the world production of Apples is between 500 and 600 million bushels, and of Pears between 125 and 150 million bushels.

Concurrent with this report, information has been received concerning the success of the Apple Publicity Campaign in the United States of America, when last year's huge crop was marketed in that country without burdening the English market at the expense of Australia and New Zealand.

This campaign was based on the new facts recently brought to light by medical science as to the medicinal and food value of the Apple.

All this is reinforced by reports of Nutrition Committees in various parts of the world, the major emphasis being on the fact that the general public are not eating sufficient fruit for normal health.

Substantially increased Apple consumption has followed the publicity campaign conducted recently in Australia. In fact, it is reliably stated by a competent authority that with the continuity of this campaign the consumption of Apples can be so substantially increased as to make export a secondary consideration. This is of the greatest importance to the fruit industry and is very heartening.

Closely allied to this increased consumption is the need for forward planning in relation to orchard cool stores. Additional cool storage space, particularly in States like South Australia, Tasmania and New South Wales will enable them to spread their sales of Apples over a longer period, thus having a stabilising effect on the market and allowing supplies to be marketed in a regular and orderly manner.

For some years past the benefits to be obtained from the small cool store built on the orchard have been pointed out in these pages. The privately-owned store has everything to recommend it, and it would not be wrong to forecast that in years to come every orchard producing over about 3,000 cases per annum, will have its own cool store.

Shortly after the war the writer foretold of the many benefits of cool storage for use in conjunction with canneries, and details were set out in these pages. At that time there were no cool stores attached to canneries and very little fruit stored prior to canning. To-day at Shepparton, Ardena, Kyabram and the A.J.C., Melbourne, approximately 500,000 cases of fruit can be held, and as prophesied, smooth out the peak period, cut down overtime and holiday work. In fact, the present huge cannery out-

put would not be practical without cool storage. To-day, further popularity of the orchard cool store is forecast.

### Home Market Developments.

In conjunction with the Apple Publicity suggested in the first paragraph of this article to help in developing the home consumption market for Apples and Pears, is the need for creating further avenues of distribution.

From the consumer's point of view it is doubtful whether the present means of distribution provide sufficient avenues for increasing the consumption. A suggestion has been put forward for the marketing of Apples and Pears in "branded packages." Once having established the buying public's confidence, there should be no difficulty in a grower, or groups of growers, building up increased home trade, and at the same time creating additional channels for the sale of fruit.

In the metropolitan area particularly, greater sales can be made through retail stores if attractive coloured packages can be provided which will have a convenient carrying handle. Each package would have to be clearly marked with the date of packing and ready for the public to carry away at unit prices of 6d. or 1/-.

### Ripened Pears.

It seems strange that the best market for Victorian Pears at the present time is to be found in Sydney and Brisbane. The writer contends that the falling off of sales in Melbourne is partly due to the fact that the Pear loses its attraction with the approach of the Winter months, when the temperature is lower than that necessary for the proper ripening of Pears. With the warmer climate in the Northern States the Pears ripen and the fruit comes to maturity much better than in the Southern States.

It is obvious that some action should be taken to overcome this problem as far as the Melbourne trade is concerned in order that the market on the "spot" can be developed to its fullest extent. The writer contends that if an experiment were made with artificially ripened Pears controlled in somewhat the same way as the ripening of Bananas, that the Pears would meet with a much better demand and the near Melbourne consumption of Pears would considerably increase during the Winter months. The cost of the ripening equipment would be very small and as previously suggested for Apples, reliably packed Pears would find a ready market.

### Cool Stores on Individual Orchards.

One hesitates to prophesy what would have been the state of the Apple and Pear trade in Victoria if



6,000 Case Fruit Store.

cool storage had not been introduced during the last 25 years, and it is appropriate that a tribute should be paid at this time to the enterprise of co-operative organisations and individual growers who have erected stores in various parts of the State. It is all the more creditable because the growers took these steps on their own initiative. Whilst it is admitted that the Government did help by advancing money, as far as the Government was concerned this was a business proposition and they received good interest on their money. Probably if the growers had not turned their attention to the erection of cool stores, the Government would have had to come to the assistance of the industry by means of bonuses or grants, as they have had to do with many other primary industries in Australia.

Production of Apples and Pears in Victoria is increasing each year, and along with this increased production, cool storage space must be increased if the increased supplies of Apples and Pears are to be marketed in a satisfactory and profitable manner.

The small store on the individual orchard has many advantages to commend it, particularly if it is proposed to develop new marketing avenues as has been suggested in the earlier part of this article.

With the gradual extension of the electric supply network quite a number of orchards can now be connected to an electric supply and so keep down the cost of the original installation of a refrigerating plant. If, however, current is not available, the new small H.P. crude oil engines are quite a good proposition. While the initial outlay is greater for the crude oil power, the annual overall running costs are slightly less. With the electric drive the owner may, if he desires, instal his plant on full automatic control, but in most cases the operation of the plant is so simple that manual control is generally satisfactory. It is, however, a fact, that the more even temperatures given by the automatic control will result in better storage conditions for the fruit.

### System of Coiling.

Fruit has been more or less successfully stored with all sorts of coil arrangement, but there is no doubt that the modern overhead coiling is giving the best results.

### Refrigerating Capacity for Pear Stores.

The modern methods of Pear packing for export demand at least twice as much refrigerating plant and cooling as would suffice for an ordinary Apple store of the same case capacity, and growers contemplating installation should make up their minds clearly on this point.

### Internal Air Circulation.

For rapid pre-cooling of Pears some form of internal air circulation appears to be necessary. The original installations at the Griffith and Leeton Canneries have now been modified at the cool store of the Australasian Jam Company, which allows of a speed of cooling of hot soft fruits which leaves little to be desired. A special circulator fan of a portable nature is available for installation in these new Pear chambers.

### New Building Method.

Buzzer chips or sawdust will always take first place in the low cost, and construction of orchard cool stores, and it now remains for a cheapened and yet satisfactory method of building to be worked out. The answer may be found in the use of corrugated galvanised iron for both internal and external walls of the rooms, using a minimum amount of timber in the framework. Low first cost of construction and minimum upkeep would result from such a store.

A study of the foregoing review in connection with the Apple, Pear and canning fruit industries will give some idea of the important part that modern scientific research has played in assisting these sections of the industry. The experts attached to the business of Messrs. R. Werner & Co. Pty. Ltd., refrigerating engineers, have gathered much valuable information on all aspects of cool storage in relation to the fruit industry, and the advice of their engineers is always available to fruitgrowers to discuss cool storage problems, submit estimates and other details concerning cool storage.

Representatives will be in attendance at Messrs. R. Werner & Company's stand at the forthcoming Melbourne Royal Show. Their stand is situated at the corner of McCracken-avenue and Lobb-street, and a cordial invitation is extended to growers to call and discuss all aspects of cool storage.

## Enamelled Petrol Tins

### Safe for Grape Picking

**T**HE FOLLOWING GOOD HINT is given by Mr. H. L. Manuel, Viticultural Expert in the "N.S.W. Agricultural Gazette."

Probably the cheapest and most convenient containers for use during the Grape-picking period are four-gallon petrol tins. Unfortunately, these tins rust and particles of rust eventually find their way into the fermenting tanks along with the crushed grapes or juice, and come in contact there

with the fermenting juice or must and, later, the wine.

It has been found that a certain disorder known as "blue casse" is caused by an excess of iron. A very small amount of iron in excess will cause trouble, particularly in white wines, should they, when aerated (as is done during the process of racking), become cloudy, and although the wine may later become somewhat bright, the cloudiness is likely to recur. The

grower should therefore endeavor to assist the winemaker in preventing an excess of iron contaminating the wine.

The Viticultural Branch of the Department has carried out some tests with enamel and aluminium paints, and it has been found that rusting can be prevented and the life of the tins lengthened by painting the inside of the tins with a good-quality enamel. Cheap enamel is not satisfactory, and any substance which is easily affected by the acids in the grapes should be avoided.

Regarding the use of galvanised iron trays or linings, as were seen in some instances in the lorries during last

vintage, it might be explained that the zinc coating of the galvanised iron is liable to attack by the acids of the grapes, and, as well as being detrimental to wines, as mentioned above, is also a poison. It would, therefore, be advisable for growers to apply a coating of good enamel paint to these trays or linings.

It was a dark and stormy night when the weary husband returned home. "I've been to every shop in town to try and match this ribbon for you, but have failed."

"Splendid!" cried his wife. "I just wanted to make sure it was unique."